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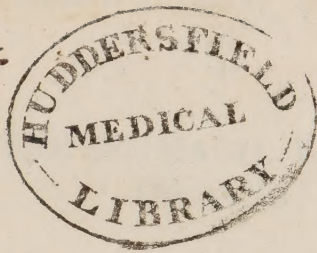
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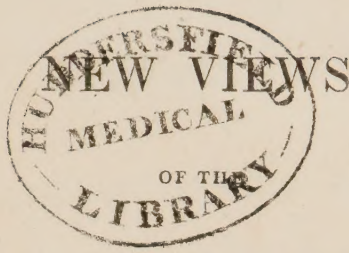


NEW VIEWS

OF

THE PROCESS OF DEFECATION,

&c. &c.



PROCESS OF DEFECATION,

AND THEIR APPLICATION TO THE

PATHOLOGY AND TREATMENT

OF

DISEASES OF THE STOMACH, BOWELS, AND OTHER
ORGANS ;

TOGETHER WITH AN

ANALYTICAL CORRECTION

OF

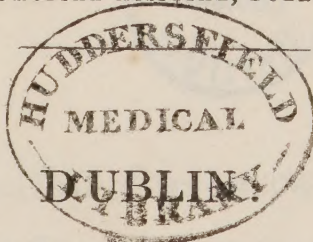
SIR CHARLES BELL'S VIEWS

RESPECTING

THE NERVES OF THE FACE.

By JAMES O'BEIRNE, M. D.,

SURGEON EXTRAORDINARY TO THE KING, ONE OF THE SURGEONS OF THE
RICHMOND SURGICAL HOSPITAL, DUBLIN, ETC. ETC.



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1833.

PROCESS OF DEFECATION

PATHOLOGY AND TREATMENT

DISEASES OF THE STOMACH, BOWELS, AND OTHER
ORGANS

ANALYTICAL CORRECTION

SIR CHARLES DILL'S VIEWS

THE NERVES OF THE FACE



321829

Printed by R. GRAISBERRY.

TO
GENERAL, THE MOST NOBLE HENRY WILLIAM,
MARQUIS OF ANGLESEY,
K.G.G.C.B.G.C.H.,
GRAND MASTER OF THE ILLUSTRIOUS ORDER OF ST. PATRICK,
LORD LIEUTENANT GENERAL AND GENERAL GOVERNOR OF IRELAND,
&c. &c. &c.

MY LORD,

Believing this Work to contain original matter of the highest importance to the science of medicine, I cannot but hope that it will prove not wholly unworthy of the distinction you have conferred upon it, by permitting me to inscribe it to your Excellency.

I avail myself of this occasion to express my devoted attachment to your Excellency's person and government, and my deep sense of gratitude for the numerous favours and acts

of kindness and condescension, which I have
received at your hands.

I have the honour to be,

My Lord,

Your Excellency's most obedient,

Faithful, and humble Servant,

JAMES O'BEIRNE.

PREFACE.

It is so well known that I have been for years engaged in the investigation of the subject of tetanus, and have had such unexampled success in treating the disease, that many will be surprised, if not disappointed, at seeing the present instead of my long promised work on that subject. Others will desire to know why two subjects, apparently so little connected with each other, are brought together and treated in the same work; and the generality of readers will expect to be made acquainted with the circumstances which have led me to adopt the very peculiar views and practice which I advocate. It is requisite, therefore, to commence by entering into a full and satisfactory explanation on these points, although it necessarily involves matter which would otherwise be much more appropriately reserved for another occasion.

In autumn, 1821, I treated a case of traumatic tetanus successfully by tobacco enemata, admi-

nistered in the common way ; and, shortly after, published it in the third volume of the Dublin Hospital Reports, with general observations on the remedy and the disease. But the subject still continued to occupy my thoughts so incessantly, that, at length, a variety of circumstances induced me to overlook its great and numerous difficulties, and to undertake its thorough investigation. In May, 1822, another traumatic case came under my care, and the same remedy was employed, and in the same way ; but although it acted at first rather favourably, it ultimately failed in making any impression on the disease, and the patient died. If I had not predetermined to avoid mistaking difficulties for impossibilities, this failure would have made me relinquish the subject as utterly hopeless ; but, instead of being disheartened by it, the occurrence rather excited me to persevere, and to look for the cause of failure. With this view, my notes of the case were carefully compared with my report of the former. In doing so, my attention was fixed by a circumstance which was observed to have occurred in both,—namely, that although the syringe was in excellent order, properly filled, and its pipe fairly inserted up the rectum, there was the greatest difficulty, and, occasionally, an impossibility of discharging the contents, and causing them to pass higher than the rectum, or to be retained for more than a few seconds. This circumstance convinced me that the muscular

coats of the rectum participated in the general spasm, and that the effect of this spasm was to obliterate the cavity of the intestine. It immediately occurred to me, therefore, that it would only be necessary to mechanically dilate this intestine by introducing a gum elastic tube, through it, into the sigmoid flexure of the colon, in order to give exit to the gaseous and fluid contents of the bowels, and to enable the tobacco infusion to produce its full specific effects, by acting upon a sufficiently exposed and extensive surface of the colon. In October, 1822, an opportunity of testing the correctness of this idea, presented itself in the case of an elderly woman, admitted into the Charitable Infirmary, Jervis-street, of which, until my recent resignation, I had been one of the surgeons for nearly thirteen years. The case was of the traumatic species, and came under the care of my respected friend, Mr. Robert Adams, who, with his usual liberality and love of science, permitted its treatment to be directed by my views. The first step was to pass up the rectum a gum elastic catheter, of the largest size, cut across immediately below its eye, and well oiled, particularly on the cut surface. In passing it up, the instrument was felt to be opposed, at about two inches from the anus, by the contracted parietes of the intestines. The higher it ascended, the greater appeared to be this kind of opposition, until, at length, after being introduced to the height of nine or ten inches, it passed rapidly forwards, and as if through

a narrow ring, when an escape of flatus and fluid feces took place from its extremity, and gave great relief to the patient. In short, I had the great gratification of finding that the results of the experiment were precisely such as I had anticipated ; and that it was not only in my power to administer the tobacco enema, so as to insure its full operation, but also to free the bowels at will. The woman recovered ; and from this period may be dated my unexampled success in treating this hitherto most fatal and intractable disease. In the mean time, other diseases in which constipation attended, and had resisted all other means, came before me in the course of practice, and suggested the necessity of trying the plan which had proved so effectual in tetanus, with the exception of throwing up such purgative fluids only as the peculiar circumstances of each case seemed to require. In almost every instance in which these trials were made, the plan was attended with the most decided and prompt success. At length, this occurred in such a variety of cases, that it could no longer be doubted that the practice was one of general application, and depended upon some fixed, but unknown principle connected with the structure and function of the rectum. Anxious to discover the nature of this principle, I proceeded to make careful examinations of the coats of the rectum, and the manner in which they were supplied with nervous influence. As might naturally be expected, its inter-

nal or mucous coat, although carefully examined, threw no light on the subject. But when the number, arrangement, and strength of its muscular coats, and the peculiar manner in which the intestine is supplied with nerves, came to be observed, it struck me forcibly that the natural action and state of this bowel should be directly opposite to what they have always been considered to be. On reflection, also, this idea seemed to be completely sustained by a great number of well known facts. It only remained, therefore, to establish its correctness by a few simple and obvious experiments on the rectum of persons in health. Accordingly, these experiments were made, and proved beyond all doubt, that the natural action and state of the intestine were very different from those universally supposed. This fact being established, it was only necessary, first, to consider the effects which should necessarily ensue from the action of the ileo-cæcal valve, in co-operation with such a state of the rectum ;—secondly, to attend to the various sensations and circumstances which ordinarily accompany the act of evacuating the bowels ;—thirdly, to reflect upon the various ends which nature had to accomplish, in order to see what the process of defecation really was, in the state of health, and how applicable correct views of this process were to the pathology and treatment of various diseases of the digestive and other organs. But, as might naturally be expected, it

required a considerable length of time, observation, and experience, to place the whole subject in its present form.

Such are the circumstances and the steps by which I have been led to the adoption of the peculiar opinions and practice advocated in the first part of this work.

The article which forms the subject of the second part, also owes its origin to the investigation upon which I have been mainly and for so many years engaged. Some months previous to my entering on that investigation, Mr., now Sir, Charles Bell had published his views of the nervous system, in the Transactions of the Royal Society of London. These views seemed to cast so clear and steady a light over the deep and almost hopeless obscurity in which this system had been involved for ages; and appeared to be so inseparably connected with, and so essential to a correct knowledge of the seat of tetanus, that they may be said to have decided me in the resolution of entering on the consideration of that disease. By their aid, as well as by that of a crowd of facts observed and collected during my military and civil life, I found that, if it were not for this author's views respecting the nerves of the face, I could prove to demonstration the real seat of the disease, and show that it is essentially different from any that has ever been assigned to the malady. Under these circumstances, and recollecting that I had always found this part of his work

more perplexed than any other, it occurred to me that he might have fallen into some error respecting these nerves. Accordingly, I examined this part with the closest attention; and the more I studied it, the more strongly I became convinced of the fact. At length, in order to convince myself, and to remove all doubt upon the point, I commenced a regular analysis of the facts and reasons with which he endeavours to illustrate his views of this part of the subject. This analysis was completed about four years ago, and its results, together with the remarkable features of some cases of partial paralysis of the face, which I have seen since that time, have only served to confirm the correctness of the views which I had previously taken of the subject.

Both subjects were so inseparably connected with the pathology and treatment of tetanus, that my original intention was to treat them in as concise a manner as possible, and insert them in the form of an appendix to my work on that disease. But their great importance, the number and value of the cases and other materials in my possession, and the advantage of submitting my peculiar views and practice to the ordeal of professional opinion, before I should venture to reason from them as fully established, became so manifest as I proceeded, that I saw the necessity of altering this intention, and publishing them in a separate and much more enlarged form.

Such are the reasons which have induced me to bring together two subjects apparently so little connected with each other, and to treat them in the same volume. Such also are the causes of my giving this work precedence of that upon which I have been so long occupied.

The reader will readily collect from the foregoing explanation, and from the title page, that this work proposes to accomplish a task of no ordinary magnitude and pretension. But he will also perceive, that it has been imposed upon me by the force of circumstances, and the conviction of having struck into paths which have led me to the discovery of some new and important truths, and the correction of some important errors. It is not, however, that I fear so much to encounter the natural difficulties of the subjects discussed, as those against which every new view, however just, has so often had to contend, and to which some of the closest observers of the human mind have pointedly adverted. “Error,” says Locke, “is not the better for being common, nor truth the worse for having lain neglected: and if it were put to the vote any where in the world, I doubt, as things are managed, whether truth would have the majority; at least, whilst the authority of men, and not the examination of things, must be its measure.” This passage obviously refers to that tendency of the mind to be slow in admitting, and active in resisting every new truth, particularly whenever that truth hap-

pens to conflict with either long established or preconceived opinions ; and shows the sources from whence I chiefly anticipate opposition. It is to be hoped, however, that we live in an improved age, and one in which the influence of prejudice cannot long prevail against the force of reason, supported by numerous well known, and well authenticated facts.

It must not be inferred from these observations, that I consider the work perfect. On the contrary, I am prepared to admit that it has numerous imperfections, and shall feel, if possible, more gratification from seeing them pointed out and corrected, than from any praise which may happen to be bestowed on its merits. But I should only be suppressing my real sentiments if I did not assert, that it contains some principles and modes of treatment which are immutable, and likely to lead to no mean improvement and alteration both in the theory and the practice of medicine.

After reading the article on strangulated hernia and dysentery, it will be necessary to turn, for the conclusion of the first, to page 217, and, for the conclusion of the second, to the appendix. The circumstances which have made it necessary to do so, will be seen in reading these articles.

Unforeseen occurrences prevented the work from appearing at the close of the last year. This circumstance will account for the manner in which dates are mentioned in some places.

My work on tetanus is in such a state of forwardness, that I hope to be able to produce it in the course of a few months. Hints on the subject are dispersed through this volume, and may induce practitioners to employ my mode of treatment. But I shall not be surprised to find that it has failed in their hands; for it will appear hereafter, that it is very possible to destroy the patient, even at a moment when his safety appears certain, in consequence of the practitioner not being acquainted with a number of facts, which it would be impossible to place before him, except by a regular treatise on the subject.

23, North Cumberland-street,

Dublin, Jan. 18, 1833.

NEW VIEWS
OF
THE PROCESS OF DEFECATION,
&c. &c.

OBSERVING, first, that the fibres which compose the muscular coat of the cæcum and colon are so much paler, thinner, and more disgregated than those which compose the muscular coat of the small intestines, and that numerous cells are formed within the cæcum and colon by means of the longitudinal bands : secondly, that the cæcum is abruptly enlarged to a much greater size than either the ileum or the ascending colon ; that it receives but a partial coat from the peritoneum, for the purpose of favouring its distension, and that it is placed rather above the right os ilium in order to afford firm support to the matter which may be accumulated within it : thirdly, that the ascending colon takes a long course directly against gravity ; that the transverse arch of the colon takes nearly as unfavourable a course, and that both the ascending and descending portions of the colon are so situated, that, compared with the small intestines, they receive but little

impulse from the diaphragm or abdominal muscles : fourthly, that a very long and broad process of peritoneum is allotted to the sigmoid flexure, in order to also favour its dilatation : fifthly, that the anus is guarded by a pair of strong sphincter muscles ; observing all these arrangements of nature, we cannot but recognize in them so many provisions for retarding the progress of the fecal matter, and forming the large intestines into a depot for its reception and accumulation. There are, however, still other provisions for the same important purpose which have hitherto escaped observation, and without which the rest would be insufficient to bestow on man the power he enjoys of retaining and discharging the feces at will, a power at once the most indispensable to his own comforts, and to the enjoyment of civilized life. But before I can be enabled to show what these provisions are, or what the process is by which the contents are moved through the large intestines, and finally expelled from the body, it will be necessary to correct the erroneous opinions entertained respecting the filling of the rectum and the office of the sphincter ani, in the healthy condition of the bowels.

From the earliest period to the present, all physiologists have described the fecal matter as passing freely from the sigmoid flexure of the colon into the rectum, and gradually distending the latter until, by its pressure, such a sense of uneasiness is communicated to the sphincter ani

and muscles of the perineum, as to rouse the diaphragm and abdominal muscles to effect its expulsion from the body. It is a universally received opinion also, that the power of retaining the feces and controlling their discharge, depends exclusively upon the sphincter muscles of the anus.

These opinions, it is obvious, originated from the circumstance of the sigmoid flexure and the rectum appearing in the dead body as one continuous tube, and also from the fact of there being nothing like a sphincteric arrangement of fibres observable in the muscular coat of either of these portions of the intestinal canal. But, venerable as they are rendered by time, and plausible as they may appear, the following facts and observations will be sufficient to show that they are quite erroneous, and formed upon the most superficial and deceptive views.

In the first place, it is universally admitted, and it has been shown, that a design to retard the progress of fecal matter, and to convert the large intestines into a depot for its reception, is obvious throughout the intestinal canal, particularly in the cæcum and colon ; and it must be manifest that, if a free communication existed between the sigmoid flexure and the rectum, that design would fail to be accomplished at the point, of all others, at which it was most necessary to have secured its objects ; for such an arrangement would necessarily expose the rectum to frequent accumulations, and such as, besides interfering with

the ordinary functions of the bladder, would subject the sphincter ani to continued irritation, and thus deprive man of the important advantage he enjoys of retaining the alvine contents not only for hours, but for days, without suffering any inconvenience whatever.

Secondly. The circumstance of nature forming one of her chief depots for excremental matter in a part of the intestinal canal so close to, and continuous with the rectum, as the sigmoid flexure is, appears altogether inconsistent with the idea of a free passage between these portions of the canal.

Thirdly. In the act of receiving an enema, every person is sensible of a considerable degree of opposition to the ascent of the fluid in the rectum. It is well known, also, to those in the habit of administering injections per anum, that, although the syringe may be in the best order, properly filled, and its pipe fairly inserted up the rectum, considerable force is generally required to discharge the fluid, from the resistance given to its passage upwards.—These facts would lead us to infer that the rectum, so far from being open, is firmly contracted and closed.

Fourthly. Surgeons find it necessary to pass a finger up the rectum either to direct the course of a catheter, sound, or staff, to discover whether a fistula communicates or not with the bowel; to detect the presence of a calculus in the bladder, or a stricture in the intestine itself; to ascertain

the state of the prostate gland; and for various other purposes; and yet it is a fact that it has exceedingly rarely happened, that, on any of these occasions, the finger has encountered either solid or fluid feces in the rectum, or presented a soiled appearance when withdrawn. Indeed, as far as my experience and inquiries enable me to speak on the point, in the few instances in which such examinations have detected the presence of excrement in the healthy rectum; it has been invariably found in very small quantity, and never in any but the lowest part, or pouch, of this intestine. It is, also, a fact familiar to apothecaries and nurses that the pipe of the injecting syringe, however long it may be, is rarely, if ever, found soiled with fecal matter when withdrawn after administering an enema. These circumstances show that the rectum is contracted and closed so as to prevent free communication between it and the sigmoid flexure.

Fifthly. Membranous filaments have seldom, if ever, been found traversing in various directions the cavity of either the small intestines, the cæcum, or the colon, while they have often been met with in the rectum. This fact proves that the parietes of the rectum must have been contracted, and its lining membrane in close contact at all points, for a time sufficient to effect the firm organization of these filaments, and, consequently, that there could have been no communication

between this intestine and the sigmoid flexure for, at least, several hours.

Sixthly. The two sphincter muscles of the anus are considerably weakened in the disease called prolapsus ani ;—in the operation for fistula in ano, these muscles are completely divided, and thereby wholly incapacitated, for a certain time, from acting as sphincters ;—not only these muscles, but also a portion of the rectum above them, are occasionally destroyed by venereal, cancerous, and other ulcerative processes ; yet it rarely happens that the power of retaining the alvine contents, is found to be at all impaired in any one of these cases. It is therefore manifest that this could not possibly occur if the passage into the rectum were as free as it is supposed to be, or if the power of retaining the feces, and regulating their discharge, depended solely on the sphincter muscles of the anus.

Seventhly. Seeing the forcible nature of the foregoing facts, and anxious to test the truth of the inferences drawn from them, I have been led to examine the rectum of a number of healthy persons, healthy at least as far as the bowels were concerned, at different times in the same day, in order to ascertain its actual state, and as nearly as possible the time and manner in which it is filled. I proceeded in the following manner, and almost invariably obtained the following results. On passing a stomach tube to the height of half an inch up the rectum, neither flatus nor feces escaped

through it ; passing it up about an inch and a half higher, it was still found that nothing escaped, but that it could be moved about freely in a space which, on introducing the finger, was ascertained to be what anatomists call the pouch of the rectum, in a perfectly open and empty state. From the highest part of the pouch to the upper extremity of the bowel, generally a distance of from six or seven to eight inches, it was found that the tube could not be passed upwards without meeting with considerable resistance, and using a degree of force sufficient to mechanically dilate the intestine, which was plainly felt to be contracted so as to leave no cavity for this extent. When the instrument reached, in this way, the uppermost point of the rectum, the resistance to its passage upwards was felt to be sensibly increased, until at length, by using a proportionate degree of pressure, it passed forward rapidly, and as if through a ring, more or less tight, into a space in which its extremity could be moved with great freedom ; and as instantly a rush of flatus, of fluid feces, or of both, took place through the tube. In some instances, indeed, it happened that neither gaseous nor liquid matter escaped at this moment, but, in all these, the distinct feel of the extremity of the tube having entered a solid mass in the flexure, was communicated to the hand ; the instrument, on being withdrawn, exhibited a few inches of its upper extremity covered, and its eyes plugged up, with solid excrement ; the person

generally went to stool soon after, and passed a large quantity of solid feces. In every instance, where the tube presented the least appearance of feces after being removed, this appearance was confined to that portion of its upper extremity which had entered the sigmoid flexure.

In this way, I have also examined the rectum of healthy persons in a few minutes after they had passed a stool, and of others at the moment when they felt a moderate inclination to go to stool, and have ascertained that the rectum is in a perfectly empty and contracted state at both of these periods.

The results of these examinations establish the correctness of the inferences drawn from a number of facts, but in a much more positive and precise manner, for they distinctly prove, first, that in the healthy and natural state, all that part of the rectum above its pouch, is at all times, with the single exception of a few minutes previous to evacuation of the bowels, firmly contracted and perfectly empty, at the same time that the pouch itself and also the sigmoid flexure of the colon, are always more or less open and pervious;—lastly, that the sphincter ani muscles are merely subsidiary agents in retaining the feces.

These conditions of the sigmoid flexure and rectum in the healthy state, are directly opposite to those in which these intestines have been heretofore universally considered to be placed, and lead to views very different from those hitherto

universally entertained, not only of the physiology of the intestinal canal, but also of the pathology and treatment of intestinal diseases. In order, therefore, to remove all rational doubt respecting so important a point, as well as to prepare the way for giving a correct general view of the manner in which the contents are moved through and expelled from the alimentary tube, I shall now show that the structure and disposition of the parts in question, the sources from which they are supplied with nervous influence, and the nature of the functions they have to perform, are such, that these parts cannot be in any other than the conditions just mentioned.

While the small intestines can be said to have little more than one muscular coat, and the cæcum and colon but a similar, with the addition of three narrow longitudinal bands, the rectum possesses an internal coat composed of strong fleshy fibres set closely together, and arranged circularly, and an external composed of still stronger and more fleshy fibres arranged longitudinally, also set closely together, and so as to completely surround and cover the internal coat: in addition to these, each of the three longitudinal bands of the sigmoid flexure sends down strong fleshy fibres to be expanded upon and intermixed with those of the proper external coat. *It is therefore both an anatomical and a physiological fact, that this intestine exceeds every other part of the intestinal canal in the number and strength of its muscular coats, and consequently in muscular power.* Again, this intestine

is the only portion of the intestinal canal into which we can trace branches from the regular spinal nerves going directly, and without previously interlacing with filaments of the sympathetic into its substance ; for we can not only trace, but plainly see, that the right and left sacral plexus, which consist of nerves of this description, send the hæmorrhoidal branches in this manner to supply the rectum. *It is also, therefore, both an anatomical and a physiological fact, that this is the only part of the intestinal canal which receives nerves directly from the motific and sensific columns of the spinal marrow ; and, consequently, that a much higher order of irritability and sensibility is bestowed upon it than upon either the small intestines, the cæcum, or the colon, and that it is thus directly subjected to the influence, both healthy and morbid, of that all important organ.**

* Whatever may be the precise nature of the functions performed by the sympathetic system, and they are no doubt very important, experiments on the ganglia and filaments of this system have not shown them to possess any sensible degree of irritability or sensibility. On the other hand, experiments on the spinal marrow and the nerves proceeding from it, have demonstrated that they possess these properties in the highest and most sensible degree. It follows, therefore, that the inference which I have drawn from the fact of the rectum being the only portion of the intestinal canal that receives nervous influence directly from the great source of motion and sensation, is drawn upon fair and just principles. But independently of the other uses to which I mean to turn it, the fact itself seems to explain various circumstances connected with affections of the rectum, and also of the urinary bladder, uterus, and vagina, which likewise derive nervous influence

Now, when an intestine so supplied with nervous influence, and endowed with such muscular

directly from the sacral plexus of each side ; but of these affections I shall here notice only the following. It explains why there should always be paralysis of the rectum, with involuntary stools whenever the structure or functions of the spinal marrow suffer seriously from accident or disease ; and why there should always be unusual constriction of the rectum, with a proportionate degree of constipation, whenever this great nervous centre becomes the seat of morbid excitement. It explains a circumstance noticed by Ollivier, and familiar to most practitioners, namely, that in whatever region of the spinal marrow an injury may be inflicted or disease exist, the structure and functions of the urinary bladder are invariably found altered. It explains the remarkable irritability and sensibility which attend various affections of the rectum, urinary bladder, vagina, and uterus, and shows the principles upon which leeches applied to the anus, and anodyne enemata, act in relieving those affections. It appears, also, to explain the circumstance of opium and other substances acting more energetically when applied to the rectum, than when received into the stomach ; for it is but reasonable to conclude, that while the muscular coat of this intestine is supplied by the motific portion of the hæmorrhoidal nerve, the mucous or internal coat, to which these substances are applied, is chiefly supplied by the sensific portion of the same nerve, and there are strong reasons for believing that nerves of sensation perform other important functions besides those of ministering to volition, and bestowing sensibility. For instance, the fact of the lachrymal gland receiving nervous influence from no other source than one of the nerves of sensation, affords a strong proof of their connexion with the important function of secretion. Their intimate connexion with the structure and functions of the brain, the strikingly distinct and independent manner in which, as compared with the motor nerves, they arise from the spinal marrow, and many other facts might also be employed to show their controlling influence over still more vital functions. But this is

power, is called into strong action, as in the act of expelling its contents, it is quite manifest that the effect will be precisely similar to that which we know to be produced on the œsophagus after an act of deglutition,—namely, to contract its parieties so powerfully as to obliterate its cavity; for, whether we regard the number and arrangement of their coats, the sources from which they derive their nervous influence, or, as will soon be apparent, the nature of the respective functions they are destined to perform, perhaps no two parts will be found to resemble each other more than these, the upper and lower extremities of the digestive tube. But anatomy points out, that the extent to which the contraction of the rectum takes place, must be limited to that portion of the intestine above the pouch, in consequence of the middle and posterior divisions of the levator ani muscles being inserted into the lower portion, and continually acting as antagonists to keep the pouch open.* It is equally manifest that imme-

treading on ground almost untrodden, and touching on a subject too extensive and too difficult to be discussed in a note, or to be treated without more time and labour than would be convenient, and more space than would be proper to devote to it on the present occasion. It is one, however, on which I have collected some facts, and should it not fall into abler hands, I may perhaps return to its consideration at some future period.

* When an anodyne enema is administered for the purpose of relieving irritation or spasm of the rectum, urethra, or urinary bladder, we know practically that the quantity of fluid to be thrown up the rectum, should not exceed two ounces. But the

diately after the bowels have been sufficiently freed, the rectum, being empty, is in a state of rest, and placed in a situation the least capable of counteracting that contraction of its parietes which accompanies and follows the last expulsive effort ; but I shall now show that a change which the flexure undergoes at the same moment, maintains the rectum in this favourable situation until such time as another evacuation of the bowels is about to take place. This change consists in the inferior and greater portion of the empty flexure falling into the pelvis, hanging doubled over, and rather to the left of the rectum, remaining in this situation until it is raised by distension into the place it had previously occupied in the left iliac fossa ; and it is scarcely necessary to observe, that the first of these changes of position is one which would effectually prevent the descent of fluid or solid feces, if not of flatus, and thus secure the undisturbed condition of the rectum. But as this change in the situation of the sigmoid flexure has not been noticed, it will be necessary to mention the grounds upon which I infer its occurrence. Here, however, I shall merely mention that when-

reason is now, for the first time, obvious,—namely, because the only part of the intestine that is not in an imperviously contracted state, and that is capable of containing and retaining solid or fluid substances, is the pouch, the size of which does not admit of the introduction of a much greater quantity than that which experience has pointed out.

ever the flexure is found empty in the dead body, the above is the situation in which its inferior half is invariably observed ; and take leave to refer to the general account, which I shall presently give, of the process of defecation, for reasons in favour of believing that such also must be its situation in the living body after the bowels have been freed.

Lastly, if, on one side, the rectum is firmly contracted and closed, while, on the other, the ileo-cæcal valve is so constructed as to afford an onward but not a retrograde passage to the contents of the small intestines ; it is quite a self-evident proposition that the cæcum and colon, and, of course, the sigmoid flexure, must always be in a more or less full and open state.

Having settled these preliminary points, I am now sufficiently prepared to show that the following is really the process by which the contents are moved through the bowels, and finally expelled from the body.

The contents of the stomach having passed through the pylorus, and entered the superior transverse portion of the duodenum, this portion of the intestine, previously in a passive state, is now roused into activity by the stimulus of distension, the circular and a few comparatively very minute longitudinal fibres which compose its muscular coat, contract forcibly upon the contained mass, and urge it into the next, the middle or perpendicular portion, in which its presence also excites contraction ; and thus by a succession of similar

dilatations and contractions, the mass is propelled in a gradual and regular manner through the inferior transverse portion into the jejunum, and thence to the termination of the ileum. This process, however, is considerably assisted by the firm, equable, and constant pressure to which the small intestines, in particular, are subjected by the diaphragm behind and the abdominal muscles before in their alternate contractions to assist in carrying on ordinary respiration. It is also greatly facilitated by the circumstance of the gaseous matter necessarily taking the precedence, dilating the bowel before it, and thus, if not wholly effacing, greatly diminishing the acuteness of the numerous angles formed by the convolutions of the small intestines, and which would otherwise present so many serious obstacles to the progress of the solid and fluid parts of the mass. Having been conveyed by these means to the extreme termination of the ileum, the contents, now reduced to excremental matter and a considerable quantity of a peculiarly fetid gas, are propelled into the cæcum through the ileo-cæcal valve, which is so constructed that, at the same time that it affords them a perfectly free passage, it effectually prevents even their fluid or gaseous portion from returning, either in health or disease, into the ileum.* Having entered the

* Gaspard Bauhin, while washing the intestines of a subject which he was dissecting at Paris, in the year 1579, was first led to

cæcum, they are there very differently circumstanced, and moved forward by a very different

the discovery of this valve by observing that water poured into the jejunum ran freely into the large intestines, but that when poured into the large, it could not be made, even by using pressure, to pass into the small intestines.—(Caspar Bauhinus in appendice ad Franciscum Roussetum de partu Cæsar. Shenckii Opera, p. 359, Francofurti, 1665). Portal, after making an opening in the abdomen, and another in one of the small intestines of two living dogs, injected the smoke of tobacco into the rectum of each of these animals, but could not detect the peculiar smell of tobacco in any part of the small intestines.—(Cours D'Anatomie Médicale, tom. v. p. 223.)

These experiments show that the action of this valve is by far more of a mechanical than an organic nature. Indeed it is scarcely possible to closely examine its structure and configuration without feeling convinced that such must be the fact; yet it is rather a generally received opinion, that an inversion of its action takes place whenever stercoracious vomiting occurs. But independently of its conflicting with such facts, this opinion is both theoretically and practically unfounded. It is unfounded in theory, because it directly assumes that the alvine contents do not become feculent until they enter the large intestines, and that the fecal matter vomited can only proceed from this source; whereas nothing can be more common than our finding, in cases not attended with this kind of vomiting, the ileum, and sometimes the jejunum, filled with what might well pass, both in appearance and smell, for fecal matter; and, this being the fact, it must appear a much more natural and correct mode of accounting for the phenomenon in question, by considering the fecal matter to be thrown up by an antiperistaltic movement commencing in the ileum, than by supposing it to be produced by an inversion of the action of a valve so constructed, and acting in a great measure so mechanically. It is equally unfounded in a practical point of view

process. But as I find it most difficult, if not impracticable, to explain these points in a sufficiently clear and satisfactory manner, without first disposing of others, I shall defer their consideration for the present, and assume that the fecal mass has been conveyed into the sigmoid flexure, and that the repeated descent of similar masses causes this

In hernia, the prolapsed intestine is generally found to be either a portion of the jejunum, or, which is much more frequent, of the ileum; and it is clear that, in the event of strangulation and stercoraceous vomiting occurring in such cases, the stercoraceous matter does not and cannot proceed from the large intestines, and that the contents of these intestines, so far from being vomited up, could not, even if the action of the valve became reversed, be propelled farther than the mere point of strangulation: and as to the comparatively rare instances in which the prolapsed intestine has been found to be a portion of the cæcum or colon, it is remarkable that they are all described as being attended with vomiting, but in no instance, as far as a reference to nearly every case of the kind quoted by Mr. Lawrence enables me to speak, with fecal vomiting; but should it even be shown hereafter that they are attended by such a symptom, it would still remain to be proved that the fecal matter does not come from the ileum. In stricture of the rectum, or of the arch of the colon, the cæcum and all that portion of large intestine intervening between it and the strictured part, are often found so enormously distended, that if the valve ever became inverted, it might reasonably be expected to occur under such circumstances; yet neither my research nor my experience have, as yet, furnished me with an instance of fecal vomiting attending stricture in these situations.

In short, it appears to me that there are the strongest grounds for believing, that the action of the ileo-cæcal valve is never reversed in health, nor in disease, except in the event of its being destroyed as a valve, either by rupture or ulceration, an occurrence which has not, I believe, been observed.

portion of the colon to become distended, and to ascend from the cavity of the pelvis into the left iliac fossa. When this occurs, the flexure, in proportion to the rapidity and degree of its distension, begins to turn upon the contracted rectum as upon a fixed point, until at length, like the stomach, it directs its greater arch forwards and upwards, and its lesser backwards and downwards. By this movement the contents are brought somewhat perpendicular to, and so as to bear directly upon the upper extremity or annulus of the contracted rectum, but as their mere weight is insufficient to force a passage downwards, and as this end cannot be accomplished either by such gentle pressure as that exerted by the alternate contraction of the diaphragm and abdominal muscles in ordinary respiration, or by the efforts of the flexure itself, in consequence of its muscular power being so very inferior to that of the rectum, they are compelled to remain stationary, until such time as the increasing accumulation and distension produce a sense of uneasiness sufficient to call into action those great expulsive agents, the diaphragm and abdominal muscles.* These mus-

* Why are the abdominal muscles called into action, when the cæcum and colon become fully distended? The question is a new one. Apparently, also, it is one of great difficulty; but the labours of a French experimental physiologist, and which, though now nearly two years published, appear to be little known in these kingdoms, enable me to give to it what I consider a direct and satisfactory answer. By a great number of ingeniously contrived

cles, instead of acting alternately, now act simultaneously, compress the abdomen and its contents

and well executed experiments on dogs, horses, and sea-hogs, this gentleman has completely succeeded, in my opinion at least, in showing, that while the pneumo-gastric nerves alone govern the motions of the stomach, and, conjointly with the sympathetic system, those also of the superior and greater portion of the small intestines, the extremity of the spinal marrow, or rather the branches which it gives off, alone govern the motions of the lower portion of the ileum and the whole of the large intestines.—(*Recherches Experimentales sur les Fonctions du Systeme Nerveux Ganglionaire, &c.*, par J. L. Brachet, 8vo. Paris, 1830, p. 188. et seqq.)—This doctrine is certainly true as far as it applies to the rectum, which, it has been shown, receives nerves directly from the source of voluntary motion; and should it even be found impossible to trace nerves proceeding from the same source, and going equally directly into the ileum, cæcum, and colon, a point which yet remains to be determined, it would not necessarily follow that the principle of voluntary motion is not conveyed to these portions of the canal in some manner too artfully perplexed to be discoverable. Moreover, I am in possession of facts respecting differences in the state of the stomach and intestines in the common and in the rare form of tetanus, which I shall advert to in my forthcoming work on that subject, and show that they go far in proving the correctness of the conclusions come to by M. Brachet. It appears, then, that the motions of the large intestines, contrary to the opinion generally entertained, are not of an involuntary nature, but placed directly under the influence of the will, and subjected to that of the great source of voluntary motion. It appears, also, that these motions are intimately associated with those of the abdominal muscles, in consequence of both being governed not only by the same source, but by the same branches of nerves proceeding from that source. But as these nerves are not simple, but compound, and, besides conveying a motific principle to the muscular, convey a sensific principle to the mucous

on all sides, urge the free and floating mass of small intestines downwards and even into the cavity of the pelvis, so as to press forcibly upon not only the distended sigmoid flexure, but also

and serous coats of these intestines, and inform the sensorium of the condition of all the parts to which these principles are supplied, it is evident that the state of the membranous coats, and the influence of the will must also be taken into account, in explaining the connexion between the large intestines and the muscular parietes of the abdomen. Commencing with the membranous coats, it will, be found that their respective situation, organization, and functions, are such as to connect one of them intimately, and the other scarcely, if at all, with the action of the abdominal muscles. Thus, the serous coat, from the nature of the situation it occupies, from its comparatively low rank in the scale of organization, and from performing merely the offices of investing and supporting the bowel, and pouring out a lubricating halitus to prevent adhesions between its surface and that of surrounding parts, is not exposed to or known to be susceptible of what can be strictly termed irritation; accordingly, when from any cause, it becomes the seat of inflammatory action, we never observe any thing like an expulsive effort made, or any evidence of irritation. The mucous coat, on the contrary, holds a high rank among organized parts, performs functions of the most important nature, and, from the nature of its situation, is constantly exposed to both mechanical and chemical irritation, and frequently, of course, to attacks of inflammation; whenever, therefore, it becomes the seat of either one or the other, we find that expulsive efforts are invariably the consequence. In the expulsive efforts induced by the fully distended state of the cæcum and colon, during health, we have an example of this effect being produced by simple mechanical irritation; in the fact that most purgative medicines do not begin to act, until, according to their greater or less activity a longer or shorter time elapses, or, in other words, until they shall have reached the large intestines, and there ex-

upon the cæcum and the urinary bladder. By these means the contents of the distended flexure are acted upon in every direction, and so as to be impelled against the upper extremity or annulus

cited the lining membrane, we have a fair illustration of the power of chemical irritation to summon the abdominal muscles into action ; and we know that dysentery, a disease in which the mucous membrane of the cæcum and colon is always in an inflamed state, is invariably attended with frequent and violent straining to discharge the bowels, but which, amongst other causes, generally proves unsuccessful, from the short duration and the hurried and irregular nature of the efforts made by persons so affected. But this close connexion between irritated or inflamed states of a mucous membrane, and the action of muscles in its vicinity, is equally manifest in other situations, and seems to be a general law of the animal economy, and founded on the same principles. For example, nothing can be more common than irritation or inflammation of the mucous membrane of the nostrils causing sneezing ; than irritation or inflammation of that of the mouth and pharynx causing some degree of either trismus, dysphagia, or rigidity of the nape, or all of these at once ; than irritation or inflammation of that of the kidneys or ureters causing painful contractions of the lumbar muscles ; or, than irritation or inflammation of that of the urinary bladder causing frequent micturition.— As to the influence of the will, it is certain that it is always called into operation instinctively and generally with effect, the moment that the distention arrives at a certain point, and produces a sensible degree of feeling of uneasiness.

The answer, therefore, that I would give to the proposed question, is just this, that the close connexion or sympathy which nature has established between the abdominal muscles, on one hand, and the muscular and mucous coats of the large intestines, on the other, together with the well known influence and operation of the will, is the cause why the abdominal muscles are called into action, when the cæcum and colon become fully distended.

of the contracted rectum with a force sufficient to compel the parietes of this intestine to separate and afford a free passage. The nusus now ceases, but as soon as the rectum becomes filled, it is roused to make an expulsive effort, by which the whole of its contents are driven and impacted into the pouch. Here their accumulation produces a great sense of weight and uneasiness in the perineum, an urgent desire to go to stool, and a still stronger nusus, by which the sphincters are forced open and dilated, and the final expulsion of the egesta is effected. But the urinary bladder, although it is subjected to considerable pressure during this process, is not evacuated at the same moment, but immediately after, because, during this the last stage of the process of defecation, the accumulation within the pouch and dilated sphincters presses up the prostate gland against the arch of the os pubis, and thus effectually prevents the flow of urine, until the accumulation is removed. The evacuation of the rectum and bladder being completed, immediately the nusus ceases, the rectum and the sphincters return to their former state of contraction, the diaphragm reascends, carrying with it and restoring to their proper situations the liver, the stomach, the spleen, the small intestines, the cæcum, and the ascending, transverse and descending portions of the colon. But the inferior portion of the sigmoid flexure is differently situated. Having a remarkably long and free process of peritoneum, and being empty, it is compelled, during the last expulsive nusus, to oc-

cupy part of the space which the evacuation of the bladder and rectum leaves in the cavity of the pelvis, and must of necessity remain in this situation, until it becomes again distended, because, as a mere glance will show, the manner in which the peritoneum connects the small and large intestines with the diaphragm is such, that from the descending portion of the colon being bound down to the abdominal parietes, this is the only portion of the intestinal canal which does not follow, and is not in the least influenced by the action of the diaphragm. This is the fact which induced me to assume that the situation of the empty flexure in the living body, is the same as that in which it is uniformly found after death.

I have now to show how the excrementitious matter is circumstanced on entering the cæcum, and to explain the process by which it is transferred to the sigmoid flexure.

The excrementitious matter passing from the ileum into the cæcum, becomes accumulated in the latter intestine, and prevented from being moved upwards, from a variety of causes, among which may be mentioned the very acute angle at which the ileum enters the cæcum; the greater size and capacity of the cæcum compared with the ileum which enters, or the ascending colon which leads from it; the long course which the ascending colon takes against gravity; and the absolute necessity of the cæcum becoming filled before it can either be excited to or supported in any expulsive effort. But there is obviously ano-

ther and a still more powerful cause than any of these for accumulation in this situation. It is this, while the solid and fluid portions of the excrementitious matter are filling the cæcum, the gaseous portion, not being subject to the same laws and disadvantages, ascends into and ultimately fills to distension all that space intervening between the cæcum and the sigmoid flexure, and by the pressure which it exerts, as effectually prevents the ascent of the contents of the former intestine as the introduction of air into the tube of a barometer, prevents the ascent of mercury.

Although thus difficultly and peculiarly situated, the contents of the cæcum are transferred to the sigmoid flexure by a very simple process, which is this. From the above causes, the accumulation of flatus in the colon increases, until at length the great expulsive agents are called into action, and the bowels evacuated in the manner just described. One of the great impediments, the flatus, is thus removed, but at the same instant of time that this is effected, the diaphragm and abdominal muscles are not only compressing the cæcum in the way already mentioned, but also propelling the contents of the small intestines into the already distended cæcum in considerable quantity, and with a force at once sufficient to excite this intestine to an expulsive effort, and compel its contents to ascend and occupy the vacant space above it; and once put thus in motion, the mass is easily forwarded by the action of the diaphragm and abdominal muscles, aided by that of the intestine itself, into the

descending colon, from whence its descent into the flexure is comparatively easy and obvious. As a proof that this is really the process by which the cæcum is unloaded, and the flexure filled, and that it is one which is not slowly, but very quickly, completed, I shall now state a few facts with which the nature of my examinations into the state of the rectum in healthy persons, has made me acquainted. In the course of these examinations, it often occurred that on passing the gum elastic tube into the flexure, the escape of flatus, but not of fluid feces, the unresisting feel communicated to the hand, and the unsoiled appearance of the instrument when withdrawn, satisfied me that no feces were then in the flexure ; yet, on reintroducing the instrument in four or five minutes after, I almost uniformly found that more or less fluid feces passed through it, that its upper extremity was coated with solid feces on being removed, and that the person discharged a solid stool soon after.

✓ In arriving at this stage of the subject, evidence has been adduced which appears to bear me out in concluding, first, that the cæcum is considerably distended before it is unloaded ; secondly, that the whole of the mass by which it is distended, and no more, is transferred at each time that it is unloaded ; thirdly, that at the moment of going to stool, there is generally one mass of fecal matter in the cæcum and another in the sigmoid flexure, and consequently that these may be considered as the measure of the quantity discharged when the bowels

are said to be freed ; fourthly, that as two distinct acts of expulsion are always required before a healthy person finds his bowels sufficiently freed, the capacity of the cæcum may be received as the measure of that of the rectum.

Such are the means and the process by which the act of defecation is accomplished. Such also are the arrangements by which nature attains objects most essential, not only to the wants but to the existence of man. By the structure and function just pointed out, the design of retarding the progress of the egesta which is so obvious throughout the cæcum and colon, is admirably preserved in the rectum, where it has been shown to be of such importance to his wants as a civilized being, and to his protection against the disgusting consequences of injury or disease of the sphincters. By the manner in which the cæcum is filled and emptied, and the discharge of the egesta regulated, the whole of the intestinal canal is permanently retained in a state of distension sufficient to excite and support the action of the diaphragm and abdominal muscles ; and by doing so, to keep up that constant pressure upon the great veins of the abdomen by which they are chiefly enabled to forward their blood to the right side of the heart, and without which, having no valves, and but few other provisions for propulsion, they would be rendered wholly incapable of performing this function so essential to life.

Admirably adapted as this design is to its ends, and great as the advantages are which it bestows,

it is but consistent with the decree which dooms man to be "born but to die," that it should abound in the elements of disease. Accordingly this will be found to be the fact, and I shall now show what these elements and diseases are, and also in how clear and simple a manner the present views of the process of defecation explain various affections of the bowels, many of which have never been properly explained, and are not, in fact, explainable by the views hitherto held respecting this process. It is not my intention, however, to do more than merely to sketch this extensive part of the subject, in the following brief and desultory manner.

When, from a variety of causes too well known to require mention, morbid irritation is excited in any part of the digestive tube itself, in any one of the great nervous centres which preside over its functions, or in any one or more of the numerous other organs with which it is connected by sympathy, this irritation may be either of so mild and peculiar a nature as merely to quicken and repeat the natural process of defecation, and thus give rise to diarrhœa, or it may be of various degrees of greater intensity, and produce other and very different effects. Whenever it exists in any of these situations, and that it is higher in degree than that which causes diarrhœa, it is clear that the maximum of its effect will be upon that part of the intestinal canal which is at once the most muscular and excitable, and, by being already

contracted and empty, the least capable of resisting its action ; and consequently that the rectum, being the only portion of the canal so circumstanced, will be stimulated to still greater contraction, and thus cause constipation. It is also clear that the constipation so produced, will be either more or less obstinate in the direct ratio of the intensity of the irritation, and the degree of irritability of the person. If the constipation proves obstinate, the patient feels perhaps no inconvenience, and continues to indulge his appetite as usual, until, at length, the cæcum and colon become so distended, that they can no longer admit the contents of the ileum, and then pain in the bowels, severe twisting round the umbilicus, vomiting, and, in short, the symptoms of colic ensue. If this state be suffered to continue for a certain length of time, the solid, fluid, and gaseous contents soon cease to find an entrance into the colon, accumulate in the ileum and other small intestines, rouse these intestines and also the abdominal muscles into strong action, and thus finally become the cause of their own expulsion by the mouth, the only direction in which they can pass, or encounter least resistance. In this way, and without in any manner recurring to the gratuitous assumption of an inverted or antiperistaltic motion taking place, stercoraceous vomiting is superadded to the other symptoms, and colic is converted into ileus or ileac passion. Lastly, if the patient be not relieved from this state, he will

either die, exhausted by excessive pain and debility, or the following series of effects will be produced : the distension of the whole of the intestinal canal goes on increasing, until the laminae of the mesentery become forcibly separated just as they go to invest the intestines, and the sub-serous tissue is either unnaturally stretched or torn ; this tissue soon becomes the seat of an inflammatory action, and thus, according as this action may extend itself along the mesentery, or confine itself to the serous coat of the intestines, will ileus be converted into either peritonitis or enteritis.

But although, according to the principle here laid down, the unusually contracted and closed state of the rectum is considered, and obviously with justice, as the cause of constipation and its consequences, it is self-evident that the uppermost part or annulus of this intestine is the only portion of it that can be said to be engaged in obstructing the exit, and resisting the weight, volume, and propulsion of the contents of the sigmoid flexure ; and that the inferior part, although also contracted and closed, is comparatively in a state of rest. It is equally evident that the entrance of the rectum, in consequence of performing this kind of function, necessarily becomes much more exposed to both mechanical and chemical irritation than any other part or point of the intestinal canal. Indeed, when we consider how frequently accumulations take place in the flexure from the common but pernicious habit of disobeying natural calls to stool ; how commonly stimu-

lating and improper articles of food, and the most drastic medicines are used ; and how often the hepatic and intestinal secretions become, from these and a variety of other common causes, of a highly vitiated and irritating nature, it is scarcely possible not to admit that this particular part of the intestine is in a very constant state of excitement and spasm. Hence it is, that spasmodic stricture is of such frequent occurrence in this particular situation ;* and that constipation is so

* In an excellent paper on the Diseases of the Anus and Rectum, inserted in the 5th volume of the Dublin Hospital Reports, Professor Colles agrees with Mr. Samuel Cooper and others in expressing strong doubts of the existence of spasmodic stricture of the rectum. But throwing aside altogether the fixed principle upon which it has now, for the first time, been shown that such a condition of the part is producible, and must be of frequent occurrence, it appears to me that there is quite a sufficient number of facts to overturn all the objections which he urges against the general opinion. I shall, therefore, take the liberty to canvass briefly and seriatim, not only the objections he raises, but such as he might have raised. Commencing with one of the latter description, he might have safely urged the fact, that the existence of spasmodic stricture of this intestine has not, as yet, been satisfactorily established by dissection ; but as death, with very few exceptions, resolves and effaces every vestige of spasm, it would be just as unreasonable to infer that spasm had not existed in this situation during life, because no trace of it could be found there after death, as to infer that the views which I have advanced respecting the rectum must be false, because in the dead body that intestine is generally found open and presenting all the appearance of a tube continuous with that of the sigmoid flexure. No doubt, the learned professor, with his usual sound judgment, viewed the matter in this its proper light, and left it untouched. I cannot,

general a feature of disease. It is in this way also that the narrow neck or contraction so

however, dispense with its assistance, for it enables me to introduce a fact connected with a spasmodic disease, in which the muscular system, so far from being relaxed, is in rather a more general state of contraction after than before death, and consequently one better calculated than any other to decide the point in question. It is this. In examining the bodies of a considerable number of persons who died of tetanus, and in some of whom, be it remembered, a gum elastic tube had been repeatedly passed, during life, up the rectum and into the colon to a height of more than fourteen inches, I have ascertained that the rectum is always in one of two states, namely, that it is either remarkably contracted from its commencement to its pouch, or that, while its inferior and greatest portion may be more or less in a dilated or a contracted state, its uppermost part is marked by an exceedingly narrow tight neck or contraction, perfectly free from all appearance or feel of structural alteration. The latter description of cases, in particular, obviously exhibit pure and unexceptionable specimens, not only of spasmodic, but of permanently spasmodic stricture. But I have only to refer the reader to the cases related in this division of the work, in order to convince him that a great variety of other diseases, as well as tetanus, furnish proofs of the existence of spasmodic stricture at the upper part of the rectum. He will there find cases of retrocedent gout, of spinal irritation, of strangulated hernia, and of various other diseases in which firm stricture is shown to have existed at this part of the bowel not only for days but for months, and yet was removed by mechanical dilatation, often not performed more than once, thereby proving that it could not have been of an organic, but a spasmodic nature. Doctor Colles presses the facts, that modern authors speak confidently of, but do not describe this species of stricture; and that they declare the bougie to be the principal remedy for it, and, as I understand him, every other species of stricture of the rectum not malignant. But I cannot see how these facts support his views. In the first place,

often observed, in subjects of all ages and of both sexes, at the extreme termination of the sigmoid

this morbid condition is never discovered except in connexion with constipation as a cause, or with various other diseases as a symptom or an effect, and consequently it does not admit of a separate description; besides, as the only real difference between this and simple organic stricture, is in structure, and not, as it will be found, in the nature or intensity of the effects which they produce, it is difficult to perceive why the full description which we have of one, should not serve and be sufficient for the other. Secondly, I am utterly at a loss to know why, if the bougie be successful in the treatment of simple organic stricture, it should not, a fortiori, be equally, if not more, successful in the treatment of spasmodic stricture.

Such are the grounds upon which I venture to differ from a gentleman, whose opinions I hold in the highest respect, and for whom, in common with all my professional brethren, I entertain the most sincere esteem and regard. Inasmuch, however, as I have shown that, even in perfect health, there are always more constriction and resistance at the upper than at any other part of the rectum, it becomes necessary that I should distinguish between this the natural state, and that which I consider as constituting spasmodic stricture of the same part. The distinction which reason and experience lead me to draw is this. In the former, the functions of the bowels are natural, or nearly so, and the resistance to passing a bougie or a gum-elastic tube into the colon, although firm enough to be quite sensible, is but moderate. In the latter there is either complete and obstinate constipation, with its long and well known train of symptoms, or the patient complains of habitual costiveness and flatulency, unusual straining and pain at stool, the scantiness of his motions, sudden and almost involuntary bursts of flatus per anum, which give him ease, and he generally mentions that after continuing in this state for a number of days, he is completely relieved by a copious discharge of fluid, natural feces, yet that this relief is but of short duration: lastly, if the

flexure, is to be explained, and not by considering it the result of congenital malformation, as Mr. White of Bath, and, more recently, Mr. Salmon and Mr. Calvert of London, agree in believing. Previous to the formation of spasmodic stricture in this situation and in this way, that particular part of the mucous membrane which lines the stricture, is far more exposed than any other to the irritation arising from the weight, impulse, and perhaps acrimonious nature of the contents of the flexure; but it becomes still more and more exposed after the formation of the stricture, until at length it is excited to a mild kind of inflammatory action, which soon extends to the corresponding portion of the muscular coat, but is prevented from extending further by the effusion of coagulable lymph, and the formation of adhesions between the two coats; thickening and, of course, coarctation of the parietes of this part of the canal follow, and thus spasmodic is converted into organic stricture.*

rectum be examined, the resistance to passing a bougie or a tube into the colon is always very considerable, and often such as to require, in overcoming it, a degree of force which many would think unsafe to employ.

* The great majority of writers on the subject agree in stating this to be the situation in which organic stricture of the rectum is most frequently found, and their statements, in this respect, have been amply verified by cases and dissections. But I am prepared to go much farther, and to assert, that whenever the disease occurs this is invariably the situation in which it is first formed, and the only one in which pure organic stricture can be said to really exist.

If this kind of stricture be of long standing, and if it should happen to occur in a person in whom

Seeing that White, Copeland, Sir Charles Bell, Salmon, Calvert, and many others relate numerous instances of the disease being situated at various points lower down in the rectum; that they describe the feel communicated to the finger, in such cases, as being that of so many abrupt projections of the thickened parietes into the cavity of the bowel; and that some of them have even met with instances of excrement being lodged above what they considered the lower stricture, I can easily imagine that such an assertion will, *prima facie*, appear very extraordinary, if not absurd. But if I can show that it is supported by the evidence of pathological anatomy, and that there are unsuspected sources of error in making examinations per anum, which account for the feel communicated, on such occasions, to the finger, and point out its deceptive nature, it will at least be admitted that there are some grounds for the opinion which I advance. Having endeavoured in vain to explain the formation of such strictures as those in question, or why they should be met with at such various and uncertain points, never having seen any morbid preparation of the disease which exhibited the distinct circular projections or septa that have been so often felt low down in the rectum, and having failed in finding any satisfactory account of such a preparation, I began to entertain strong doubts that such a form of the disease existed, or that, if it really existed, it did not bear that close resemblance to stricture of the urethra, which the descriptions of authors would lead us to suppose. With the view of ascertaining how far these doubts were well or ill founded, I examined, very lately, all the preparations of stricture of the rectum in the museums of the Colleges of Physicians and Surgeons, and in those belonging to three private schools in this city. Considering the extent and value of these collections, and the reputed frequency of the disease, I expected to find a greater number of specimens, but those I saw were neither so few nor so unvaried, that I could not form a tolerably correct general opinion from the appearances which they presented.

age and natural predisposition concur in giving such a tendency, it will ultimately degenerate into

They seemed to naturally range themselves under three heads, viz., those in which thickening of the parietes and coarctation of the cavity were limited in extent to a small portion, often but a few lines, of the extreme termination of the sigmoid flexure; those in which a greater degree and extent of disorganization existed at the same point, and extended, but with much less thickening and far less coarctation, a short distance upwards into the sigmoid flexure and downwards into the rectum; and, lastly, those in which a greater or less portion of the flexure was thickened and ulcerated, and all that portion of the rectum above its pouch considerably thickened in its parietes and contracted in its cavity. In every instance I observed that the disorganization was greatest, and appeared to be of longest standing, at the commencement of the rectum, and in no instance did I observe any appearance of a circular projection or septum in the inferior portion of this intestine. Here, then, are a number of preparations of stricture of the rectum tending to prove that the disease is first formed at the commencement of the bowel, and that the pure form of it is not to be met with lower down. So far, at least, the evidence of pathological anatomy is favourable to my position. It only remains to point out the sources of deception in examinations of the rectum to which I have alluded, and to show that they fully explain the cause of the descriptive errors into which authors have fallen. This will be best done, perhaps, by showing that they are such as might even lead, and no doubt have often led, surgeons to consider that organic stricture existed where it really did not exist. In examining a perfectly healthy rectum, I have often made the following observations. On passing the finger through the anus to the height of about two inches, it may be freely moved about in the pouch, but if it be pushed a little higher up and directed towards the top of the pouch, it will there encounter a firm ring which might easily be mistaken for a circular septum or stricture, but which we now know to be natural, and to be formed by the con-

and become of a scirrhus and malignant nature.

traction of that part of the bowel immediately above its pouch. If the finger be pushed through this ring, for more or less of force will be required to do so, the parietes of the intestine dilate before it, and offer comparatively little resistance to its progress; but at whatever point it stops, there the feel of an obstructing septum, perforated by a central opening, will also be communicated, in consequence of the part immediately above the point of the finger remaining contracted and closed; and thus a very distinct but deceptive sensation of a succession of strictures may be produced. If this be true of the healthy rectum, it is obvious that we have only to apply the facts to the case in which the lining membrane of the bowel is more or less thickened, in order to see that the deception would be proportionally stronger and more complete. But how are we to explain the circumstance of fecal matter being found lodged between the true stricture above and a supposed one below? I am not aware that the circumstance has been observed in the dead body, but even if it had, it would not be difficult to account for its occurrence. For this purpose it will merely be necessary to recollect, first, that the quantity of feces which passes through the superior stricture, is always much smaller than natural, and in proportion to the size of the opening; secondly, that the moment a quantity passes from the flexure into the rectum, the stricture closes and effectually prevents the portion which has descended from being propelled, either by the weight of the mass contained in the flexure, or by the expulsive efforts of the abdominal muscles; thirdly, that the disorganizing process has deprived the muscular coat of the rectum of more or less of its expulsive power; fourthly, that in consequence of this defective state of the usual propelling forces, the fecal matter will accumulate as it descends, and be considerably favoured in so doing, by the curved direction which the bowel takes; fifthly, that the matter accumulated will not dilate a greater length of the intestine than the space which it fills, and will leave the remaining portion in its ordinary

It is only necessary also to observe the relative situation of different vessels and nerves, in

contracted state. The consideration of all these circumstances will at once show that fecal matter may be lodged above any point low down in the rectum, without supposing the existence of true organic stricture at that point. Such are the grounds upon which I am disposed to maintain the assertion with which I have set out.

The foregoing observations are not divested of practical utility. They show that organic stricture of the rectum is a disease of far less frequent occurrence than it is generally considered to be. They show that cord-like and figured stools are not to be expected as a common symptom of the disease, and only perhaps in a very advanced stage, and in cases where a considerable extent of the gut is much thickened. They show that the finger, although it may enable us to form a tolerably correct idea of the state of the lining membrane, communicates false impressions, and is much too short to reach the seat of stricture, and that the existence or non-existence of the disease can only be ascertained by employing another and a much longer instrument. They make us better acquainted with the nature of the obstacles to be met with in examinations per anum; and they suggest an easy, and, if I do not deceive myself, a more certain mode of passing an instrument through a very small stricture, than any which has as yet been employed for that purpose. It is this: having introduced the finger, and ascertained the size of the ring immediately above the pouch, a gum elastic tube, of a proportionate size, about ten inches long, and open at both extremities, is to be passed as high up the rectum as it can go without using much force. If pressing it moderately but firmly upwards will not make it enter the colon, it is to be kept steadily pressed against the stricture, and retained there until another, but a smaller and longer tube, is passed through it, and endeavoured to be made to enter the colon; should this also fail to enter, another and another, still smaller and longer, are to be introduced, until one of the smallest size has passed through the stricture; this may then be left in and the rest withdrawn. An

order to see the mechanical effects of considerable accumulations in the sigmoid flexure. By the di-

apparatus such as I propose using, may be readily prepared by taking a stomach tube and a number of gum elastic catheters of different sizes, and cutting them so as to answer the description just given. Since the plan first occurred to me, I have not had an opportunity of giving it a trial, but it appears to be so very rational and feasible, so free from objection of any kind, and so peculiarly calculated to obviate all the pain and difficulty experienced in passing a very small instrument up the rectum, and so likely to diminish the uncertainty of directing it quickly into the opening of the stricture, that I cannot but mention it, and recommend its adoption. But whether the proposed plan be ever adopted or not, it appears to me that the gum elastic tube is by far a better instrument for the purpose than even the best made or most improved bougie can possibly be. At the same time that it possesses all the firmness required, it is much more flexible, it is much less inconvenient in point of weight and resistance, and, by affording a free passage for the escape of flatus and fluid feces, it offers the great and paramount advantage of giving immediate relief to the patient, and, at the same time, assuring the surgeon that he has succeeded in effecting an entrance into the colon.

Having found it necessary to compare the structure and action of the rectum with those of the œsophagus, I cannot consider it either a misplaced or an useless digression to show the analogy which exists between strictures as they occur in these opposite situations, and that it is much closer than that which Sir Everard Home has endeavoured to establish between those of the œsophagus and urethra. In both situations, the forms under which the disease has been observed are the same, and are of either the spasmodic, the simple organic, or the malignant organic kind. In both instances, the disease is formed in the only portions of the digestive tube that are designed to expel their contents the instant they are received. In the œsophagus, as in the rectum, the true form of

rect pressure which the accumulated mass makes upon the hæmorrhoidal veins which lie immediately behind, and are closely connected with the rectum, hæmorrhoids are produced, and thus come to be of such ordinary occurrence. From the same cause the ureter is compressed as it is passing in front of the division of the left common iliac vessels, and behind the commencement of the rectum, and the urine, not finding a passage into the bladder, accumulates in the upper portion of the ureter, and in the pelvis of the left kidney, causing pain in these situations, and ultimately nephritis. It is also evident, that as the cæcum has been shown to be at all times as much, if not more, loaded than the sigmoid flexure, it may compress and effect the right ureter in a similar manner. Hence the dilated state in which the upper or abdominal portion of these vessels have often been found; and hence the necessity of freeing the bowels whenever calculi are supposed to be passing from the kidneys to the bladder. It would seem likewise, that the pressure exerted on

the disease is always found at the upper extremity or commencement, and also at a point where a larger cavity terminates in a smaller. Lastly, it is only required to observe the movements executed to effect the passage of solid or fluid substances from the pharynx into the œsophagus, in order to perceive their resemblance to those by which the rectum is forced open and filled, and to be convinced that the same principle which explains the formation of stricture in the one, will, with very little modification, serve also to explain its formation in the other.

the right and left lumbar plexus by large masses collected in the cæcum and sigmoid flexure, is the cause of the pain complained of by persons labouring under stricture of the rectum as being felt about the sacrum, shooting along the thighs, and occasionally extending down to the soles of the feet. Whether this be or be not one of the causes of the neuralgia plantaris of Professor Chaussier, the rarity of the affection will not permit me to decide ; but I can safely assert that I have known several instances of acute pain in the ball of the great toe and sole of the foot, ceasing immediately after the operation of a brisk purgative. As to the probability of the loaded flexure pressing on the left common iliac vein, or the loaded cæcum on the inferior vena cava, so as to cause either œdema of the lower limbs, or a varicose state of their superficial veins, these are points which I must leave to be determined by future observation.

But although a forced state of contraction and closure of the rectum is now shown to be the chief and the most general cause of constipation, there are several other causes by which it may be produced, and which I shall now notice ; amongst these may be mentioned either strangulation or invagination of any portion of the intestinal canal ; the presence of numerous or large intestinal calculi ; collections of the stone of fruit in the bowels, forming so many nuclei for calcareous concretions ; a retroverted, a scirrhus, or a gra-

vid state of the uterus ; the formation of large tumours external to the rectum ; and the various kinds of tumours, tubercles, and excrescences described by Wiseman, Morgagni, Ruysch, Boerhaave, Desault, Pott, Earle, Hey, Howship, White, and others, as growing from the internal or mucous coat of the rectum. Of these, however, it is only necessary to say, that they all act, in a great measure at least, mechanically, either by compressing the parietes of the intestine together, or by blocking up its cavity, and that the removal or the permanency of the obstruction to which they give rise, must depend upon the nature of such of them as may happen to be met with, and the extent to which these may or may not be either removable by operation, or curable by other means. I shall therefore pass on to such of the remaining causes of constipation as require particular consideration.

From the arrangements by which it is constantly kept more or less in a distended state, as well as from the greater natural proneness of its internal or mucous coat to the ulcerative than to the adhesive process, the colon is, of necessity, rarely found to be the seat of obstruction. It is true that this intestine has been found contracted at different points of its course ; but it remains to be proved that such contractions were not an effect of the purging which so often occurs either immediately before or after death. It is also in consequence of its constant state of distension,

more perhaps than from any peculiarity in its situation or course in respect to the openings of the abdomen, that hernia of this intestine is comparatively rare. But if the descending colon should happen, from any cause, to discharge into the sigmoid flexure a greater quantity of matter, and in a more rapid and sudden manner than usual, the latter, by making a sharp and nearly complete turn upon its own axis, may become so twisted as to cause a very perfect and formidable species of obstruction. It is obvious, however, that the twist so formed is not likely to occur near to the rectum or fixed point, or in the distended portion above it, and that it will take place much more frequently at the upper and less distended portion of the flexure. It is also obvious that this twist could not be produced in the first instance, nor, in the next, exist for a longer time than the expulsion of the offending matter would require, if the rectum did not remain contracted, and firmly oppose the escape of the contents of the flexure. This is not a mere speculative or ideal source of constipation; for instances of such an effect being produced by such a cause, will be found to be related by Doctor Davies, (*Philosophical Transactions*, No. 275, p. 965,) by Sir Everard Home, (*Observations on Cancer*, p. 129, et seqq.,) by Pelletan, (*Clinique Chirurgicale*, tom. iii. p. 347, et seqq.,) by Doctor Walter Oudney and Doctor Stroud, (*Medical and Surgical Journal*, vol. xvi. p. 383, et seqq.,) by Doctor

Abercrombie, (*Pathological and Practical Researches on Diseases of the Stomach, &c.*, p. 115, et seqq.,) and I have no doubt that if more attention had been paid to the point than appears to have been given to it, it would be in my power to quote more numerous examples of such an occurrence.

Although nature, by bestowing on all inflamed mucous membranes a strong tendency to relieve themselves by effusions of blood and mucus, and also a much greater proclivity to the ulcerative than to the adhesive process, has in a great degree provided against the obstruction which adhesions between the opposite surfaces of the mucous or lining membrane of the rectum would produce, and which would otherwise frequently occur in consequence of the close and constant apposition in which these surfaces are naturally placed ; yet, it is certain that the internal coat of this intestine will, when highly inflamed, take on the adhesive action as readily as mucous membranes in other situations are known to take it on, when similarly affected. When this occurs the inflamed surfaces pour out coagulable lymph into the space between them ; this lymph becomes quickly organized, and thus the cavity of the intestine is obliterated by adhesion of its opposite sides : but long before the adhesion so produced can possibly acquire sufficient firmness or perfection to render this a permanent obliteration, the contents of the flexure descend, and either completely break

up the adhesion at a number of points, or extend it at others into the form of membranous filaments crossing each other, as pure chance may determine, in various directions. In this manner is formed that kind of filamentous network which has been occasionally found in the rectum, and which, although it permits the escape of all the fluid feces and flatus, effectually obstructs the discharge of all solid excrement, and ultimately causes a sort of constipation which requires the obstructing filaments to be divided before it can be removed. One of the most remarkable instances on record of obstruction from this cause will be found detailed by M. Renauldin, in the *Dictionnaire des Sciences Médicales*, article "Constipation." It appears that the subject of it, a medical officer of the French navy, had suffered severely from obstinate constipation since his birth and up to the forty-fourth year of his age, when it caused his death; and that, on examining the body, the anus was found excessively dilated, the cavity of the rectum crossed by a fibrous partition situated a little above the anus, and that above this again the rectum and the other intestines were so enormously enlarged as to fill the cavities of the pelvis and abdomen, and to contain thirty kilogrammes, or more than eighty pounds, apothecaries' weight, of a blackish brown, pulsatious, and offensive matter.

In advanced life, particularly if the habit be sedentary, the belly generally becomes prominent

and often pendulous, the abdominal muscles fall into a flabby state, and can no longer make the necessary expulsive efforts. Such a condition of agents so important as these are to the due performance of the act of defecation, is peculiarly calculated to cause constipation. Hence its common occurrence in persons advanced in years; and hence also the necessity, in such cases, of giving artificial support to these muscles by a belt made so as to embrace and sustain every part of the abdomen.

The rectum filled and impacted with hardened feces, is known to be a cause of constipation. Such an occurrence, however, is comparatively very rare, and easily explained by the circumstances under which it has been observed, for it has never been met with in any but in paralytic, or in very aged, infirm, and sedentary persons. In such subjects the muscles of the abdomen and perineum, and also the muscular coats of the rectum, participate in the weakly state of the rest of the muscular system; and when the rectum is filled, neither the same sense of uneasiness, nor the same desire or power to evacuate is felt, as in stronger and more healthy persons. From these causes, as well as from the listlessness which frequently leads persons of this description to resist the calls of nature, it will often happen, on such occasions, that the bowel, instead of being emptied and immediately afterwards contracting and closing, in the natural way, is left in a more

or less distended and open state, and so as to no longer oppose sufficient resistance to the descent of the contents of the flexure. But while the solid portion of these contents is forced to remain behind, their fluid and gaseous portions find at first little difficulty in escaping, and, by doing so, not only obviate the sense of inconvenience, but remove the impediment to the unloading of the cæcum which their detention would be certain to produce. In this way the accumulation proceeds more or less insensibly, until, at length, the rectum becomes so filled and impacted with indurated feces that it can no longer permit the escape of either gaseous or fluid matter, and a formidable species of constipation is established. We appear to be indebted for the first correct account of alvine obstruction from this cause to Doctor John Warren of Taunton, who inserted in the fourth volume of the *London Medical Observations and Inquiries*, a very interesting, yet, unaccountably enough, anonymous Paper on the subject ; and, after an interval of eighteen years, another in the tenth volume of *Duncan's Medical Commentaries*, in which he intimates his claim to the former. As might be expected, the explanation which I have just given of the manner in which the occurrence takes place, differs materially from that which he has given ; but his description of the nature and causes of the malady, of the symptoms which distinguish it from a very opposite disease, diarrhœa, with which it is so

very likely to be confounded, and of the plan of treatment necessary, is by far the best that I can find. I cannot do better, therefore, than to extract from his last paper the observations which he makes on these parts of the subject. "The malady I allude to," he says, "assumes the appearance of a diarrhœa, but is, in fact, a constipation, or, at least, owes its origin to an unusual and considerable collection of indurated feces in the rectum." p. 256. "That this disease may in future be more easily distinguished from diarrhœa, which is so opposite to it in its nature, and with which it is so apt to be confounded, it may not be improper to remark, that in each of the cases above narrated, as well as in every other which I have seen of this disorder, the pain is principally seated in the lower part of the abdomen, and is always accompanied with a tenesmus, or a sense of bearing down, which is never attendant on a simple diarrhœa; that the motions are at all times inconsiderable, and in general mixed with scybala; and that it is a disease which does not yield to any remedy administered under the supposition of its being only a purging. It is likewise worthy of notice, as a farther diagnostic, that the pains attending it are infinitely more acute than any ever experienced in a diarrhœa. I must also add, that it is a disorder peculiar to persons in advanced life, (pregnant women excepted,) as I have never met with an instance of it in patients of any age under sixty. I have, moreover, observed that the female

sex are more obnoxious to it than the male, which is owing perhaps to their costive habit, induced by the sedentary lives they generally lead. Indeed, whatever tends to lessen the peristaltic motion of the bowels, must afford predisposition to it; and it is known to have been frequently occasioned by a long continued use of bark, opiates, and the like. A paralytic affection of the intestines, which is by no means an unusual complaint in advanced life, must likewise prove favourable to such a lodgment; and I have known it to arise from this cause." pp. 260, 261. "With respect to the cure, the plan of treatment which I have found the most successful, is to dislodge, by manual operation, as much of the contents of the rectum as possible, and, with a marrow spoon, to break down the texture of those remaining, in order to facilitate their after discharge. Sometimes the accumulation is found to take place beyond the reach of a finger or marrow spoon; in such cases I would advise the introduction of a small tallow candle, as practised by the author in the Observations and Inquiries above alluded to. Oily glysters are then to be thrown up frequently, and small doses of *oleum ricini* are from time to time to be exhibited. When, by these means, the rectum is unloaded, the tonic plan is to be pursued; and though Peruvian bark might, in this view, be deemed (*a priori*) an excellent remedy, yet I have constantly found it to be prejudicial, from its tendency to induce costiveness, and there-

fore favourable to the cause of this disease. The flores martiales, joined with the extractum gentianæ, taken twice or thrice daily, and washed down with a pretty large draught of alum whey, I have frequently experienced of infinite service. But constant attention must be paid to the daily alvine evacuations; and the oleum ricini, with oily glysters, are, in this stage of the disease, and with this view, the most proper means of effecting that purpose. In recent and slight cases, I have more than once seen excellent effects from a brisk cathartic, which has immediately thrown off the malady, and produced a cure without any other means whatever being employed, although drastic purgatives are most commonly deleterious.' p. 263-265. In the present day, every practitioner would consider the surgical scoop a better and a more appropriate instrument than a marrow spoon; he would proceed at once to extract the whole of the hardened excrement, instead of merely breaking it down; and he would perhaps altogether dispense with the use of the tallow candle. He would employ also, with advantage, astringent injections and ointments passed occasionally up the rectum; and, according to circumstances, he would urge the necessity of more active habits, of using the cold bath, or the tepid shower bath, and of wearing round the belly, particularly if it were pendulous and flabby, a tight and well adjusted belt. In all other respects, the

practice recommended by Doctor Warren, seems to be the best that can be adopted.

Mr. Copeland, in his valuable "Observations on the Principal Diseases of the Rectum and Anus," mentions a cause of constipation which is not, as far as I have been able to ascertain, noticed by any other author, ancient or modern. "I have frequently," he says, "met with cases in which very obstinate and habitual costiveness, with a long train of minor and consequent complaints, as well as some of a more active and painful character, in which there could be no actual stricture discovered on examination. But in all these cases, I have remarked that the sphincter muscle was either unusually strong in its action, or unusually extensive and broad, embracing the extremity of the gut, in many instances, for two or three inches." p. 48-9. Further on he describes the symptoms and treatment of this affection in the following terms: "When the sphincter muscle of this powerful and extensive kind is excited by the efforts to pass the stools, to a high degree of inflammation, perhaps there is no disease that the human frame is subject to which is more painful; its involuntary contractions are compared to the pains of labour; they frequently come on immediately, but more usually about an hour or more after each evacuation, and sometimes continue till the succeeding one; in some instances the complaint goes on to produce suppuration, and consequent fistula; sometimes the irritation is propagated to the neck of the

bladder, and produces a retention or impediment to the urine. I have seen it, in two cases, extend up the canal, and give rise to attacks of violent colic, and an increased secretion from the whole inner membrane of the gut, so that an evacuation of mucous cylinders, of the size of the part of the canal where they are formed, or of detached pieces of mucus, are seen mixed with the feces ; yet all this has been finally removed by the bougie. I have seen it followed by a constant evacuation of shreds of coagulable lymph, which has continued through life, and produced the greatest distress. When this substance accumulated in the bowels, it was accompanied with pain, which continued until it was discharged. A judicious writer, Dr. Pemberton, has remarked, that the appearance of this evacuation, is an evidence that the danger of the acute state of this inflammation has passed. I shall relate several instances of this disease. With regard to the treatment, the principal means of relief are the employment of opium and the use of the bougie, but more particularly of the latter. In all the earlier and lesser degrees of inconvenience which it produces, such as obstinate costiveness, long and ineffectual efforts to evacuate the bowels, it is usually all that is necessary, with the occasional use of purgatives. A bougie of a very large size, introduced merely through the sphincter, is sometimes effectual in a very short space of time, that is, after being introduced several times." p. 52-54. Now it is evident that the

sphincter muscles of the anus cannot reasonably be said to be, as they are here supposed, a cause of constipation, unless, as in the last mentioned instance, that portion of the bowel above them could be shown to be impacted with feces ; but it cannot be collected from the details of any of the three cases which he relates, that this was the fact. Every one of his cases, also, will be found to afford satisfactory evidence of the existence of stricture at the upper extremity of the rectum, and of great irritability and sensibility, not merely of the sphincters, but of the whole bowel ; indeed, he expressly states, in relating the second case, that an eminent surgeon considered it to be one of “ stricture of the gut,” that the patient had great difficulty in passing his stools for many months ; that these were, for the most part, small or liquid ; that he was constantly obliged to use purgatives ; and that bougies “ always met with an impediment about five inches from the rectum.” Besides, it will be seen that the mechanical part of the treatment was not confined in any one of his three cases, to introducing the bougie “ merely through the stricture,” as he directs, but that it was passed up to the height of six and seven inches. It is quite clear, therefore, that Mr. Copeland has completely failed in proving that the sphincter muscles of the anus, however strong in their action, or extensive and broad, are of themselves alone capable of producing constipation. In truth, this is but one of many false views

which owe their origin to the erroneous ideas entertained hitherto respecting the structure and functions of the rectum, and one which so distinguished a member of the profession could never have adopted, if it were not for the universally received but erroneous opinion, that this intestine remains permanently open, and communicates freely with the sigmoid flexure. It should be understood, however, that I do not mean to deny the existence of spasmodic stricture of the sphincter ani as an independent affection, for that has been placed beyond all doubt by the testimony of Baillie, White, Dupuytren, Boyer, Colles, and other eminent and experienced writers. I only mean to say, that the recorded descriptions of such cases do not show that they were attended by constipation, and that I cannot conceive how such an affection can, of itself, produce such an effect.

It appears then from all that I have said and advanced on the subject, that, with the exception of the comparatively rare instances in which alvine obstruction is the consequence, either of the cavity of the rectum being traversed by membranous filaments, impacted with indurated feces, filled by tumours and other excrescences, or obliterated by the pressure of tumours or of displaced or morbidly enlarged organs external to it, constipation is invariably an effect, and nothing more or less than an effect of an unusually contracted and impervious condition of the rectum, produced

by a more than usually firm and strong action of its own powerful and highly irritable muscular parietes, and maintained by a variety of favourable circumstances already explained. And it does not appear that even that species of the affection which arises from twisting of the sigmoid flexure, forms an exception to this general rule.

Having at length established this important fact, and placed it in a sufficiently strong and convincing point of view, I shall now proceed to consider the curative indications and the treatment of constipation. In doing so, however, I shall confine my observations to the disease as it arises from ordinary causes, having already thrown out sufficient hints for the management of those cases which form exceptions to the general rule.

Whenever constipation exists either as an independent affection, which, strictly speaking, can scarcely ever be the case, or as a symptom of other diseases, and whenever it is produced by common causes, it has been proved that the rectum is contracted so as to be rendered impervious, and that, at the same time, the whole of the cæcum and colon, and a portion of the small intestines, are distended with feces and flatus. Now, this being the state of these parts, it is as self-evident as the simplest proposition in nature can possibly be, that the great curative indication is to mechanically dilate the rectum so as to open and form a free communica-

tion with the colon, and thereby not only give exit but circulation to the matter so confined. This indication at once conducts us to a plan of treatment which will be found to exceed all others in the important points of safety, certainty, and expedition. This plan consists, as the reader must have long since anticipated, in the introduction of a large sized gum elastic tube through the anus into the sigmoid flexure of the colon, and, after giving exit to such flatus and fluid feces as may happen to escape, adapting to it a proper syringe, and throwing up such purgative fluids as circumstances may make it necessary to select. The first instrument that I employed for the purpose of dilating the rectum, was a gum elastic catheter of the largest size; the next was the tube of the stomach pump; but I soon found that these, in consequence of having eyes at the sides, but no opening at the point of their upper extremity, caused the fluid to be expended on the sides, and not driven to a sufficient distance up the cavity of the bowels; accordingly I cut them across below the eyes, and in this state used them, having first rubbed oil into the cut surface. Of late years I have been in the habit of using an apparatus, which consists of two gum elastic tubes and a brass syringe, and may be described thus: one of the tubes is of the largest size, eighteen inches long, open at both ends, bulbous at the upper extremity, and has, at the lower, a brass ferule made to receive and accurately fit the short pipe at the end of the sy-

ringe. The other tube is by one-third shorter, and, in all respects, the same as that attached to the horizontal pipe of the stomach pump. The syringe has, on one side, a spring lever so constructed, that, when firmly pressed upon, it turns a simple stopcock, and forms a communication between the chamber and the short tube at the extremity, while it closes that which had previously existed between the chamber and the short tube situated at one side; in short, it is Weiss's syringe, as improved by the late William Lloyd, an obscure London artist, who added the spring lever, an addition which has perfected, and greatly increased the facility of working the instrument. The manner of preparing and using this apparatus is very simple. If the tube has been kept in a warm situation, it will not be sufficiently stiff for the purpose, and will, in all probability, become doubled on itself in the act of introducing it. Whenever this occurs, it should be placed for a few minutes in cold water, and afterwards in a current of air, until it acquires the necessary degree of stiffness; its upper extremity is then to be well oiled. The syringe should be placed for a few minutes in warm water, be then removed, and well dried, afterwards have the shorter tube fixed on its horizontal pipe, and be filled with the fluid intended to be injected. In filling or charging it, either the short pipe at the end of the instrument, or the extremity of the short gum elastic tube may be immersed in the

fluid ; but whichsoever we may happen to use should be steadily kept beneath the surface, in order to avoid the inconvenience of drawing in air. With the same view, also, it will be better to draw up the piston slowly and evenly, than in a rough and rapid manner. The tube and syringe being thus prepared, an assistant is to be directed to hold the basin containing the remainder of the fluid to be injected, and when the syringe is to be recharged, to keep the extremity of the smaller gum elastic tube beneath the surface of the fluid ; a chamber-pot is to be at hand to receive any fluid feces that may escape through the tube, and, according to the circumstances of the case, either a close-stool or a bed-pan is to be prepared and ready for immediate use. Having made these arrangements, all of which will be found very useful in their way, the patient is to be turned on his left side, directed to draw up his knees, and the point of the tube, directed by the fore-finger of the right hand, is to be inserted into the anus, which is often so tightly constricted as to make it a matter of some difficulty and requiring some force to effect its insertion. This being accomplished, the the instrument is to be directed and firmly pressed upwards, inch by inch, and as nearly as possible in the course of the intestine. If the expulsive efforts be violent, which will occasionally happen, it will be advisable to yield somewhat to them, and take advantage of their intermissions to pass it higher and higher. When it has reached, in

this way, the height of eight or nine inches, the opposition to its further passage will be found considerably increased ; but instead of yielding to it, the pressure upward must be gradually increased, until such time as the resistance is completely overcome.* The moment that this occurs, the

* The resistance encountered at the upper extremity of the rectum is, according to my experience, much greater in certain individuals and in certain diseases, than in others. I have always found it greater in persons of irritable constitution than in any other class of patients, and in cases of constipation arising from an irritative state of the spinal marrow, than in those where it arose from other morbid actions. Why this should be the case, must be too obvious to require explanation. Hitherto, the nature or cause of the increased resistance constantly met with at this point, has been quite misunderstood. White, Copeland, Shaw, Salmon, Calvert, and Colles, agree in considering it to arise from the promontory or projecting ridge of the sacrum ; but there are three strong reasons for believing that this cannot be the fact. The first is, that the commencement of the rectum does not correspond to this part, but to a point considerably to its left side, namely, the left ileo-sacral symphysis ; the second, that the instrument is so closely embraced by the rectum as to be effectually prevented from taking any but the exact course of the cavity of the bowel ; the third, that the feel communicated is not that of suddenly striking against a hard body and then tilting upwards, but distinctly that of gradually increasing resistance from soft parts, and subsequently of passing through a narrow and firm ring.

Another and a very different explanation of the occurrence has been recently offered by my friend, Doctor John Houston, Curator of the Museum, and one of the Demonstrators in the School of the College of Surgeons in Ireland. In a paper inserted in the fifth volume of the Dublin Hospital Reports, and entitled " Observations on the Mucous Membrane of the Rectum," this gentleman

point of the instrument passes rapidly onwards, and as if through a very narrow ring, and the escape of either flatus or fluid feces, or of both, takes place, gives immediate and greater or less relief to the patient, and assures the operator that the upper extremity of the tube has entered the sig-

describes the intestine as exhibiting several valvular projections of its lining membrane, which have been overlooked by all the authors who have treated of diseases of the rectum, and have only been cursorily alluded to by Cloquet and some other anatomical writers. He states that the figure of these valves is semilunar; that their surfaces are sometimes horizontal, but usually have a slightly oblique aspect; that their concave floating margins are defined, sharp, and generally directed a little upwards; that their greatest depth varies from a half to three quarters of an inch and upwards, in the distended state of the gut; that their structure consists of a duplicature of the mucous membrane, enclosing a few circular muscular fibres; that their number varies from two to four, but that three is the average number; that the largest and most regular is situated about three inches from the anus, the next most frequent at the upper end of the rectum, the third about midway between these, the fourth, or that most rarely present, about one inch above the anus; and that, by being placed successively on different sides of the gut, they form a sort of spiral tract down its cavity. Considered physiologically, he conceives that these valves are necessary to support the weight of fecal matter, and prevent its urging towards the anus, and exciting a sensation demanding its discharge. Viewed in reference to disease, he considers that they explain the resistance given to the introduction of bougies; that their arrangement indicates the necessity of employing a spiral-shaped instead of a straight bougie; that they may possibly become the most frequent seat of stricture; that they have often been mistaken for strictures, and, by leading to the frequent practice of bougies, have brought on the very malady intended to be removed. The whole

moid flexure. But if neither flatus nor fluid feces should happen to escape, at this time, he may be assured that the instrument is blocked up with and embedded in a mass of solid feces. Indeed, the subsequent steps of the operation will remove all doubt of its having been so circumstanced, for,

of the statements thus carefully abridged from the original, are so directly opposed, not merely to my view of the point in question, but to almost every view that I have advanced ; they are so likely to be quoted against me hereafter, and with effect ; and they are, as I shall show, so unfounded in fact and so injurious in practice, that I am compelled to refute them in the fullest and most decided manner possible. To come at once, therefore, to the point, I do not hesitate to deny that the mucous membrane of the rectum exhibits any such valvular projections or valves as Dr. H. describes. I have sought for them repeatedly, but in vain ; and I find that he is altogether incorrect in stating that Cloquet, or any anatomist, ancient or modern, makes even the slightest allusion to their existence. Cloquet's description, as translated by Doctor Knox, is as follows : " The inner surface of the rectum is commonly smooth in its upper half, but, in the lower, there are observed some parallel longitudinal wrinkles, which are thicker near the anus, and are of variable length. These wrinkles, whose number varies from four to ten or twelve, and which are called the *Columns of the Rectum*, are formed by the mucous membrane and the layer of the subjacent cellular tissue. Between these columns there are almost always to be found membranous semilunar folds, more or less numerous, oblique or transverse, of which the floating edge is directed from below upwards towards the cavity of the intestine. These folds form a kind of lacunæ of which the bottom is narrow and directed downwards." We have here a description remarkable for minuteness, coming from an anatomist celebrated for the strict accuracy of his details, yet differing so widely and essentially from that given by Dr. H., also a distinguished anatomist, that we must

in all such cases, there is greater difficulty than usual experienced in discharging the syringe, and the tube, on being removed, will be found to have its cavity blocked up, and several inches of its surface coated with feces. The next step is to insert the short pipe at the extremity of the syringe into

either reject the one or the other. But whence such a difference on a mere point of anatomy, and one which may be so easily decided? The question is a natural one, and, as it appears to me, easily answered. Cloquet must have examined the membrane in the same manner that I have often examined it, namely, in its natural state, for he faithfully represents every appearance that I have observed. Dr. H. proceeded, as I shall now show from his own account, very differently, and obtained very different results. "My attention," he says, "was first called to these valves by preparations which I made to demonstrate the relative situation of the pelvic viscera, and to display the natural state of their cavities; and from the manner in which the making of these preparations was conducted, viz., by distending and hardening all the parts with spirit previously to being cut open, the valvular condition above alluded to was most satisfactorily exhibited." This mode of proceeding is any thing but natural, and nothing more or less than an attempt to exhibit natural appearances by placing the parts in an unnatural situation; such a situation, indeed, as is not known to be necessary to the exhibition of the *valvulæ conniventes*, or of any other valves in the body. That, by this mode of proceeding, the parts were so placed, is, I think, evident, for it is only necessary to observe that the mucous membrane is connected to the muscular coat of the rectum by a very loose cellular tissue, in order to see that, by first distending and then cutting open the intestine, the membrane would necessarily collapse and be thrown into a great variety of folds. This view of the matter is strongly supported by the acknowledged variety and want of uniformity in the number, position, direction, and depth of the supposed valves. Besides, it

the ferrule at the lower end of the tube, and by pressing firmly upon the spring lever with the left thumb, and then depressing the piston, to discharge the contents of the syringe into the colon. The degree of force necessary to depress the piston will be found to be moderate, except in the

would appear from his own account, that the process of hardening by spirit must have had the effect of corrugating the mucous membrane; for he tells us that this is "the only method by which the condition of these valves in the distended state of the rectum can be displayed," and that "by the ordinary procedure of distending it after removal from the body, the valves are made to disappear." Again, speaking of these valves, "their presence," he says, "may likewise be ascertained in the empty state, if looked for soon after death, and before the tonic contraction of the gut has subsided. They will then be found to overlap each other so effectually, as to require considerable manœuvre in conducting a bougie, or the finger, along the cavity of the intestine." In reference to the first sentence in this passage, why, let me ask, if such valves really exist, and if muscular fibres enter into their structure, they should not be discoverable at any time after death, or in any state of the intestine? Such conditions, at least, are unknown in the demonstration of any other part of the body. In reference to the assertion made in the concluding sentence of the passage, as well as to several of his pathological observations, I deny emphatically that any other manœuvre than that, if it can be so styled, which I have described, is necessary in conducting a bougie, gum elastic tube, or finger along the cavity of the rectum; that it is necessary to use a spiral instead of a straight instrument, or that the practice of introducing bougies is calculated to produce stricture, or any of the ill consequences he contemplates. Every case in this division of the work distinctly and satisfactorily proves the reverse. I might confidently appeal also to the experience of most medical men on these points; but if any doubt remain, it will be at once removed by perusing a case detailed by Mr. Thomas, in the first volume of the

cases just noticed, where the tube is plugged up with solid feces, and embedded in a mass of the same ; but even in these, the resistance soon gives way before the impetus of the injected fluid. As soon as the syringe is discharged, the thumb is to be removed from the lever, the point of the shorter

Transactions of the Medico-Chirurgical Society of London. In that case, finger after finger was introduced, until the whole hand was passed up the rectum, and Mr. T. enabled to seize and extract a piece of cane about as thick as a finger, and nine inches and a half in length, which had become jammed in the upper part of the bowel, and could be felt projecting midway between the ilium and the umbilicus on the right side ; yet it does not appear that he met with any opposition from valves, or that any hæmorrhage or other ill consequence ensued, circumstances too remarkable to be overlooked, if they had occurred, and which must infallably have occurred, if the mucous membrane of the rectum was really arranged in the manner described by Doctor Houston. The truth is, and Cloquet's description proves it, that the intercolumnar valves, which are situated in the lower half of the membrane, and are so small that they may arrest the point of a very small but not of a large bougie, are the only portions of the internal surface of the bowel capable of offering resistance to the passage of instruments. It is unnecessary to pursue the subject further.

I have now shown that the increased resistance given to instruments at the upper part of the rectum, cannot be accounted for by considering it to be produced by the promontory or projecting ridge of the sacrum, or by valvular projections of the lining membrane. There can scarcely be a rational doubt, therefore, that it arises from a spasmodic state of the muscular coat of the intestine at this part. Indeed, the nature of the office which this part, in particular, has to perform, the constant state of excitement, and consequently of spasm, in which it is placed, together with the peculiar feel communicated in overcoming the resistance, are all circumstances which seem to show that this must be the fact.

tube to be turned into and immersed in the remainder of the purgative fluid contained in the basin, the piston drawn up, the syringe filled, then discharged as before, and so on until all that remains of the fluid is injected. After the first discharge, the patient will express a desire to go to stool, and be very urgent to be allowed to do so after every succeeding one ; but the effect will be rendered much more complete by not complying with his entreaties, and persevering until the necessary quantity is thrown up, when the tube is to be slowly withdrawn. The moment that this is done, he will rarely fail to hurry to the night chair, and discharge a copious and, in many instances, an enormous stool.

If the patient be a female, she should never be exposed, for there is great indelicacy and no advantage whatever in doing so, as a few simple and obvious arrangements will enable us to conduct every step of the operation under the bed-clothes. There is also another point important to be attended to in the introduction of the tube, and to which I have but slightly and insufficiently alluded. It is this : if the resistance given by the upper part of the rectum be considerable, and that the instrument should happen to be too soft and flexible, the point of the tube will often be turned downwards, and doubled upon itself. In general, the peculiar feel communicated will enable an attentive and experienced operator to detect the occurrence almost as soon as it takes place, but it may always

be discovered by the little resistance given to the discharge of the syringe, and by the fluid not passing upwards with the usual noise, but quickly discharging itself by the anus. Whenever this circumstance occurs, the tube is to be removed, and another of sufficient firmness introduced; but should one not be at hand, that in use is to be thrown into cold water, and afterwards dried, and placed in a current of air until it becomes firm enough for our purpose.

Ideas of pain and danger naturally associate themselves with any proposal for forcing open an imperviously contracted intestine. But long and extensive experience of the practice enables me to assert that what the patient suffers scarcely deserves the name of pain, and that the danger is altogether unfounded and imaginary. Indeed, as to the danger of the proceeding, the only fear we can well entertain, is that of bursting through the walls of the intestine; but if we only reflect, for a moment, on the extreme violence required to rupture living and healthy muscular fibre; on the great muscularity of the rectum; on the fact that the rectum closely embraces the instrument and confines its course to the cavity of the bowel, and then consider how ill adapted the gum elastic tube is, in every respect, for being directed against or for piercing the sides of the intestine, we shall at once see the groundless nature of all such fears. Besides, the proposal neither implies nor sanctions

the use of such extreme and brute force, and it will never be found necessary in any case.

I have now employed this mode of treatment for more than nine years, with the most decided and unexampled success, in almost every variety of disease attended with constipation, and frequently in cases the most desperate, and where all other remedial means had completely failed. During the last four or five years, also, the practice has been employed by a number of medical men in this city, and in various parts of Ireland; and the reports of cases with which some of these gentlemen have favoured me, mention it in the highest terms of praise. It possesses, therefore, the great and unusual advantage of not coming before the profession in an infant or immature state, or merely on the authority of a single individual, but with all the maturity and weight of ample experience, and sanctioned by the open attestation of a number of eminent and highly respectable practitioners in its favour.

It only remains to prove the various assertions which I have made. With this view I shall proceed to detail a number of cases; but if I were merely to detail all those which I have myself treated on this plan, they would nearly fill a good sized volume, and after all, present perhaps a confused and uninteresting view of the subject. It will be much more satisfactory and useful, therefore, to select a number of the most striking and generally interesting, to arrange them under proper heads, and, as far as circumstances will permit, to prefer

those of other practitioners to my own. In some of the diseases, also, to which I shall have occasion to direct attention, the pathological principles upon which I proceeded are too original to be understood without explanation ; and the features of many of the cases are too remarkable to be passed over in silence. These circumstances render it necessary to preface some of the cases by explanatory observations, and to conclude others by such general remarks as their different peculiarities may seem to demand. In every point of view this appears to be the best, the fairest, and the most natural plan to be adopted. Accordingly, it is that which I shall now follow.

RETROCEDENT GOUT.

Early in the month of February, 1824, I was requested to visit Mrs. M——r, a lady about 40 years of age, of full habit, subject to attacks of gout, and whom I had attended a few months before for a well marked gouty affection of the left elbow joint. On visiting her, I found both knees swelled, painful, red, and glossy ; her pulse was regular, but the tongue rather furred at its base ; and she informed me that the day before this attack of her knees, she had, as usual, suffered from nausea, eructation, and loss of appetite. Under a reduced diet, by moderate purging, and by fomenting the knees with a decoction of poppies, the tumefaction, pain, and redness were considerably di-

minated in the course of two days. A draught composed of half a drachm of the wine of the seeds of colchicum, ten grains of carbonate of magnesia, and two ounces of peppermint water, was then ordered to be taken at night, and the fomentation to be continued. The next day, the draught having moved the bowels moderately, and the local appearances being still further improved, the same treatment was continued. At five o'clock the following morning, she awoke with intense pain in the region of the stomach, which was followed by incessant vomiting, but by some unaccountable neglect, I was not apprized of her situation for several hours. On my arrival, I found that all swelling, pain, redness, and glossy appearance, had disappeared from both knees, and left the surface of these parts in a dry and desquamating state. She was still vomiting, and complaining of excessive pain in her stomach ; her countenance was remarkably shrunk, sallow, and anxious ; her pulse quick, weak, and exceedingly small ; all her extremities were deadly cold ; and the only position in which she could remain, was sitting up in bed, and doubled forwards. There was no tenderness or unusual fulness in any part of the abdomen, except the epigastrium, where she could bear moderate but not firm pressure. Her bowels had not been moved since the evening before. In short, the case was evidently an example of metastasis of gout to the stomach, and the patient's life appeared to be in

imminent danger. My first object being to evacuate the bowels, a strong fetid turpentine enema was directed to be prepared as quickly as possible. In the mean time not a moment was lost in administering brandy, æther, laudanum, water of ammonia, separately and combined, or in applying hot flannels to the stomach, and bottles filled with hot water, to the feet, but without affording any kind of relief. The enema being prepared, was next administered with a common pewter syringe ; two similar injections were also thrown up in quick succession, but without producing any discharge from the bowels. Under these embarrassing circumstances, I considered it my duty to call for professional assistance, and soon had the benefit of the able advice and cooperation of Doctor John Crampton. To enumerate the various remedial means and agents employed by us during two days, would be both tedious and useless ; suffice it to say, that they were of the most appropriate and active kind, and that they all failed to assuage the pain or calm the irritability of the stomach, or to produce any discharge from the bowels. At this stage of the case, the general debility and suffering of our patient were such as to make us entertain the most serious apprehensions for her life ; and, as a last effort, it was agreed to throw up an enema composed of a large proportion of electuary of scammony and jalap, extract of colocynth, turpentine, assafoetida, and sulphate of magnesia. It was also arranged that, though late

at night, I should attend and see that the enema was properly administered. Accordingly, I waited and saw the nurse insert the pipe of a pewter syringe fairly up the rectum, but perceived that the greatest force was required to discharge the syringe, and, that when this was effected, the contents passed off by the anus as fast as they were thrown up the rectum. These circumstances convinced me that the obstinacy of the constipation depended, as I had previously ascertained in tetanus, on an imperviously contracted state of this bowel, and that the introduction of a gum-elastic tube alone offered a chance of saving the patient's life. In this opinion Dr. C. fully concurred, as soon as I informed him, at our meeting early the next morning, of what had occurred the previous night. The patient, after much persuasion, at length consented to the operation. She was turned on her left side, a position which, she said, added greatly to her suffering; a gum-elastic catheter, of the largest size, was inserted into the anus, and passed to the height of about two inches up the rectum, where its further progress was felt to be opposed by strong expulsive efforts, which lasted but for a few seconds, then relaxed, and again became renewed. By first yielding somewhat to these efforts, and then taking advantage of the succeeding relaxation, the instrument was gradually passed to the height of seven or eight inches. At this point the resistance was

sensibly felt to be much greater than at any former, but, instead of allowing it to yield, the instrument was pressed more firmly upwards. Having steadily continued this pressure for about one minute, the resistance suddenly gave way, the tube passed forwards, as if through a narrow ring, and, at the same moment, an uninterrupted stream of limpid serous fluid flowed rapidly from the tube, and continued to flow until three imperial pints, if not more, were discharged. From the moment that this most unexpected discharge commenced, the patient felt decided and general relief; and long before it was completed, the sudden change and improvement in her countenance were quite magical. During the rest of the day on which this favourable change was effected, and during the whole of the following day, the same kind of fluid, unmixed with a particle of fecal matter, continued to pass off slowly, yet so constantly as to require the frequent renewal of linen cloths, which it was found necessary to place under her. In a few days, generous diet alone sufficed to restore her to her usual health, which I know her to have enjoyed for several years. She died during the last year, and, as I have heard, of some attack from her old and remorseless persecutor, the gout.

As far as considerable research has enabled me to ascertain, this case is unexampled. Metastasis of gout from the extremities to the mucous mem-

branes of the eye, nose, fauces, stomach, intestines, and genito-urinary organs, and not only increasing the quantity but altering the quality of the secretions of these membranes, are mentioned by Musgrave, Hoffmann, Stoll, Guilbert, and most writers on the subject. So also are arthritic translations to the various serous membranes of the body. But I have altogether failed in discovering an instance of gouty metastasis to the stomach or bowels, in which the mucous membranes of these parts took on, as in this case, the action of serous membranes, and produced an effusion of serum into the cavity of the digestive tube. On the other hand, similar effusions, but from different and various causes, have been observed by Blancard,* Lieutaud,† Baader,‡ and Portal,§ and but too many instances of their occurrence are at this moment daily and hourly presented to us by the phenomena of that most dreadful and mysterious of all diseases, epidemic or malignant Cholera. On referring, also, to the authorities just quoted, and then calling to mind the phenomena of malignant cholera, it will be found that such effusions have been invariably preceded or attended by great general or local debility, and consequently that they occur

* Oper. Med. et Chirurg. Lugd. Batav. 1701.

† Hist. Anatomico-Medica, lib. 1, Obs. 21, 22, 23, 24, 25, &c.

‡ Obs. Med. Nos. Cadav. 1763.

§ Observations sur la Nature et le Traitement de l'Hydropisie, tom. 2, p. 225, et seqq

generally, at least, under circumstances very analogous to the state of atony in which arthritic translations to the stomach are supposed to place that organ, if not the greater part of the system. This fact would seem to countenance the idea, that, notwithstanding its apparent rarity in cases of metastasis of gout to the stomach, serous effusion into the cavity of that organ is not an anomalous, but a common and natural occurrence. Moreover, this opinion can be supported by other considerations and facts. The effusion may, and it most likely does, proceed from the stomach, yet may not be found there after death, in consequence of the fluid passing into the intestinal canal; and, if not sought for in the latter situation, may have actually taken place, yet remain undiscovered; and it certainly does not appear, as far as my researches have gone, that the post-mortem examinations of the subjects of gouty metastasis to the stomach, have been conducted on this principle or have proceeded farther than the stomach or the small intestines. But this is obviously a point which can only be determined by time and future observation. Whichever way, however, the truth may be found to lie, the peculiar circumstances just noticed as attendant on serous effusion into the cavity of the stomach and bowels, appear to justify some other conclusions. Considered physiologically, they lead to the inference, that the effusion takes place rather by simple percolation, than by the more complex and vital process of secretion. And viewed in a practical light, they show

that the stimulating plan so universally adopted in the treatment of such cases, acts, first, by restoring the lost tone of the stomach, and thus arresting further effusion; subsequently, by exciting the lacteals and venous radicles to absorb the fluid already effused; and consequently that this is the best and most rational plan that can be pursued.

Many will be of opinion, and it is not improbable, that the use of colchicum in this case, although employed in moderate quantity and apparently well guarded by the addition of magnesia, had some share in producing the metastasis which took place. Some may even go the length of attributing the occurrence altogether to its agency. But I confess my inability to decide how far this was or was not the fact.

This is one of the earliest cases, in which the similarity of the circumstances attending the ordinary mode of administering an enema, induced me to suspect, and confirmed me in the opinion, that the imperviously contracted state of the rectum, which I had previously discovered to be the cause of the obstinate constipation which attends tetanus, was not peculiar to that disease, but common to the generality of cases of constipation, and removable by the same means.

SPINAL IRRITATION.

Miss Mary M. of Irishtown, near this city, aged 19, perceived, about the month of June,

1830, that the pressure of her stays produced unusual tenderness and uneasiness of her back. Soon after, she began to suffer severe pains darting from the stomach to points corresponding to the spinous processes of the 6th, 7th, and 8th dorsal vertebræ, after meals, particularly after eating animal food. These pains were so severe, that dread of them often induced her to abstain from all food for twelve hours, and compelled her to restrict her daily nourishment to a very small slice of bread, a little butter, one or two small cups of tea, and a few table-spoonsful of beef tea. In the course of the ensuing August, her bowels, which had been tolerably regular, became unusually costive, and were freed with great difficulty. In September, the pains darting from the stomach to the spine had nearly subsided, but the attacks of costiveness had become more frequent and obstinate, and she began to vomit up every thing she ate or drank in four or five minutes after it was taken. In October, she was seen by the late Doctor H., who attended her for several months, and ordered a variety of medicines, particularly a great number of the most active enemata, which were administered by the common fistula armata, and occasionally succeeded in bringing down small quantities of feces. Early in December, she became so completely constipated, that it was found impossible to procure any discharge, even of flatus, from the bowels, and she began to suffer dreadfully from spasms of the neck, throat, shoulders, abdo-

men, and hips, and also from an intense burning sensation in her stomach. At this period, also, she felt universally cold, screamed out with pain on taking any kind of cold drink, vomited every thing she ate or drank, almost as soon as it was swallowed, and refused every kind of animal food. In this state, but much more aggravated in every respect, she was seen, amongst others, by Dr. S——, in the month of March, 1831, who directed leeches, followed by a large blister, to be applied to the epigastrium, and injections composed of warm water, castor oil, tincture of assafoetida, and sulphate of magnesia, to be repeatedly administered. About a dozen of these injections, and thirty or forty others, consisting merely of warm water, were given with a common bag and pipe, but all without producing the slightest relief. On the contrary, she became much weaker, lost the little appetite she had for bread, the only solid food she had been able to take for months, and passed night after night without sleep, notwithstanding the active use of different narcotics. She was next seen, at the instance of Dr. S——, by an eminent physician from Edinburgh, who recommended that she should try the effect of swallowing an ounce of fluid mercury, and if this produced no discharge from the bowels in eight hours, to repeat the dose. The two ounces were taken on the 30th of March, but without producing any other effect than a smart ptyalism, which came on in the course of three or four

days. The mercury did not pass off for at least a fortnight after she took it, although, during that time, injections of warm water were administered every day ; and the first notice she had of its passing off, was a sensation of cold, and as if insects were creeping along her thighs, followed by her seeing globules of mercury, in a metallic state, dropping on the floor. On the 21st of May, 1831, she placed herself under my care, and gave me a tolerably correct outline of all that she had suffered, and all that had been done for her relief, but, as I afterwards discovered, omitted to mention several important circumstances respecting the commencement of her illness, and which I have already detailed. She was particular, however, in insisting on the facts, that she had taken various purgative draughts which had not been vomited up ; that she had had at least one hundred injections of various kinds administered to her ; and that, notwithstanding, she had not had a stool of any kind, or passed even flatus per anum, since early in the preceding December, a period of nearly six months. This statement was made in the presence of her mother, a very intelligent person and very worthy of credit, who assured me of its truth. Indeed, it was not the interest of the parties to deceive me, and if I were even disposed to entertain a doubt of the facts, that doubt would have been completely removed by the information which I subsequently received from the family apothecary, Mr. Wallace, from the father

of the girl, and from various other sources. At this period, her state, in other respects, I found to be as follows : she complained of total want of sleep, and the impossibility of procuring it by artificial means. The irritability of her stomach was such, that the only sustenance she could take, or had taken for two months previously, consisted of a table-spoonful of milk and lime-water taken frequently in the day, but vomited up nearly as soon as it was swallowed, apparently little altered in quality or diminished in quantity. She was very weak, but could walk about with assistance, and though thin, not as emaciated as might be expected. No unusual fulness or tenderness on pressure was perceptible in any part of the abdomen, her pulse was weak but regular, her tongue covered with a cream-coloured fur, her menstruation, as throughout her illness, regular as to periods, quantity, and quality, but attended with severe pain.

Such were the circumstances under which this young and interesting girl placed herself under my care, with the determination of submitting to any plan of treatment which I might consider necessary for her relief ; yet such also had been my success in treating the most obstinate species of alvine obstruction, that I was induced to promise the immediate removal, not only of the constipation, but of all the other symptoms under which she laboured. The sequel will show that the first part of this promise was fulfilled to the letter, but that, with respect to the latter part, I had been

much too confident. The lesson has not been lost upon me, and may be useful to others. But to proceed. As soon as an enema, consisting of a pint of warm water, two drachms of tincture of assafoetida, two ounces of olive oil, the same quantity of sulphate of magnesia, and an ounce of oil of turpentine, could be prepared, she was placed in bed, and turned on her left side. A gum elastic tube was introduced, but with greater difficulty than usual, to the height of nine or ten inches. No flatus escaping, and wishing to ascertain the cause, the tube was withdrawn, when its cavity and about two inches of its upper extremity were found covered with solid feces. It being now clear that the sigmoid flexure contained a mass of solid excrement, the tube was again introduced, and in doing so the same difficulty was experienced, and it became necessary to use the same degree of force. Still no flatus passed off. The syringe was now adapted to the tube, and the whole of the injection thrown up. While this was doing, she became very urgent to be allowed to go to the night chair, but her entreaties were not complied with, until the whole of the fluid had been injected. The tube was then removed, and, in less than two minutes, she passed one of the most enormous stools I have ever seen; it nearly filled a large sized chamber-pot, was altogether solid, perfectly natural looking, and arranged in remarkably thick coils. Soon after, she expressed herself as being greatly relieved from the spasms which she had so

long felt in the stomach and bowels, but complained of feeling a great degree of weakness. To remove this, a broad calico roller was put tightly round the abdomen, and with the desired effect, but a small quantity of wine and water which was given to her with the same view, produced an intense burning sensation in the stomach, and caused her great agony, until she rejected it by vomiting. She was now ordered a mixture composed of four ounces of infusion of quassia, the same quantity of infusion of senna, two drachms of sulphate of potash, and to take of this a table-spoonful every second hour, until the bowels should be again freely moved. Towards night, she passed a considerable stool, partly solid and partly liquid, and another of the same description shortly before I visited her the following morning, when I found that she had some sleep during the night, but that, although not so weak and somewhat relieved, the irritability of the stomach and spasms of the abdomen continued nearly as before. Considering this to arise from the bowels not being as yet sufficiently freed, she was directed to persevere in the use of the tonico-purgative mixture, and when this failed to produce its intended effects, to have occasionally a fetid turpentine enema administered to her by the syringe and tube. By these means, her bowels were well freed, and kept in a free state for several months; but, notwithstanding the employment of a great variety of other remedial agents during this period, she remained

confined to her bed, and continued to pass sleepless nights, to be frequently attacked with spasms of the abdomen, to suffer greatly from thirst, and to reject warm milk, the only drink or nourishment she could take, and that only by a spoonful at a time. Medicine, particularly quinine in solution, of which she took a wine glassful daily, remained on her stomach. In short, with the exception of some slight relief, which she received from the application of a large belladonna plaster to the epigastrium, her situation was worse in every respect than when I first saw her. At length, about the middle of September, circumstances directed my inquiries to the state of the spine, and, for the first time, I became acquainted with the early part of her case. My first examination was rather hurried, and led to nothing sufficiently conclusive; but on seeing her again, accompanied by my friend, Dr. Corrigan, and making a more careful examination, we became convinced that there was an unusual degree of tenderness on pressure over the spinous processes of all the dorsal vertebræ from the sixth downwards, and agreed on the propriety of leeching and blistering this portion of the spine. A dozen leeches were immediately applied, and she felt sensibly relieved the next day, when the whole of the affected part was directed to be covered by a long narrow blister. This gave her unusual pain, but in the course of a few days she felt still more relieved. As soon as the vesicated surface had healed, leeches were again applied,

and, in a few days after, she was ordered to have the affected part well rubbed, three times a day, with an ointment composed of an ounce of hog's lard, two drachms of tartar emetic, and ten grains of the red sulphuret of mercury. For several days the ointment caused her extraordinary pain, which gradually subsided after the appearance of a plentiful crop of pustules. From this moment, the power of retaining fluids on the stomach progressively increased, and in a fortnight after the healing of her back, she began to take a table-spoonful of beef tea frequently in the day, and then to eat a little bread with it. From this moment, also, the rectum ceased to give any unusual opposition to the introduction of the tube, and the necessity for introducing the instrument occurred much less frequently, and soon after ceased to exist. By degrees, natural sleep returned, she gained sufficient strength to take air and exercise, and appetite to take a greater quantity and variety of nourishment, but, either from dislike or from incapability, she did not begin to eat solid animal food until the month of March, 1832. She is now, and has been for several months, in robust health, and perfectly free from any tendency to costiveness.

This case is interesting in a variety of respects. In the first place I consider that it furnishes the only recorded and well authenticated instance of any person existing for nearly six months, without passing per anum any quantity whatever

of either the solid, fluid, or gaseous contents of the bowels ; for, as far as my research has gone, I find that in all the cases in which constipation has been stated to have existed for months, the obstruction has arisen from the feces becoming hardened and impacted in the rectum, and I have already shown that, in that species of alvine obstruction, the patient is, from time to time, relieved by a discharge of flatus and fluid feces imitating a diarrhœa. Here the cause was very different. Morbid irritation conveyed directly from the spinal marrow, through the medium of one of its offsets, the hæmorrhoidal nerve, to the rectum, caused that intestine to contract in a powerful manner, and in this way produced such an accumulation of feces in the sigmoid flexure of the colon, as would, no doubt, have ultimately produced ileus or colic, or perhaps enteritis, if the state of the patient's stomach had not incapacitated her from taking any greater quantity, or any other kind of food. That such was the cause of the singularly obstinate constipation which prevailed, and the precise mode in which it was produced, is obvious from the different states in which the rectum was found before and after the discovery and removal of the irritative condition of the spinal cord ; and as to the other phenomena of the case, the irritability of the stomach and spasms of the abdomen, they are at once explained by the intimate nervous connexions which the spinal cord is known to have with the parts so affected. Secondly, I consider that the

remarkably small quantity of food, and food of the slightest kind, on which the patient lived for nearly six months, without being much emaciated, establishes the fact that a much smaller quantity of nutriment is necessary to human existence, than has been generally supposed. Lastly, I consider that the slow and cautious degrees by which the patient ventured to use fluid, and afterwards solid animal food, show how unerringly Nature always points out what is best, and convey to the practitioner a most useful lesson, and one highly illustrative of the propriety of his yielding much oftener to her silent but eloquent suggestions than he is wont to do.

The following case is given, not so much for the purpose of exhibiting the striking effects of mechanical dilatation of the rectum in cases of constipation, as with the view of still further illustrating the subject of spinal irritation, particularly its direct and decided action on the rectum.

Mrs. B. of Mecklenburgh-street, aged 35, and several years married, consulted me about the latter end of May last. She stated that, for nearly fourteen years, she had suffered so exceedingly from a sense of distention and burning in the stomach after meals or after taking any kind of cold drink, from pains darting along the abdomen, and from protracted and obstinate costiveness, that she was almost weary of life. She stated also, that, during that time, she had taken the most active purgative and other medicines under the direction of diffe-

rent medical gentlemen, but without receiving any greater relief than a slight remission in the symptoms for a few hours, whenever her bowels were freely moved. Her pulse was natural, her tongue covered with a white fur, and she informed me that the urinary secretion was healthy, but that, though regular as to periods, the catamenia were scanty and attended with pain. I directed her to procure the self-injecting apparatus as improved by me; to pass the gum elastic tube to the height of ten inches up the rectum, then to attach to it the syringe, and to throw up a pint of a strong fetid turpentine enema every second or third day. She pursued this plan until the third of June, when she again called upon me, and informed me that she was "just as bad as ever." On inquiry, however, I found that her bowels had been freely moved by the means she had employed. Considering this to be a strong proof that the gastric and spasmodic symptoms depended on some other cause than the costive habit of the bowels, I requested permission to examine her back. To this she objected that she had "never felt any pain there;" but on explaining the nature of my suspicions, she freely consented to the request. On making equal pressure on all the spinous processes, I found that she winced at those of the 6th, 7th, 8th, 9th, 10th, 11th, and 12th dorsal, and 1st lumbar vertebræ. Twelve leeches were immediately applied to this portion of the spine. The next day she felt somewhat relieved, and a long, narrow blister was ordered to be applied to the affected part. As

soon as the blistered surface had healed, she felt still greater relief, and another dozen of leeches was ordered to be applied. In a few days after, finding her greatly relieved, but not wholly free from the gastric and spasmodic symptoms, the tartar emetic ointment was directed to be rubbed well, morning and evening, along the affected portion of the spine, until pustules began to appear. She suffered, as I have frequently observed in such cases, unusually severe pain from the ointment; but as soon as the pain ceased, and for days before the disappearance of the pustules, she declared herself to be completely freed from the gastric and spasmodic symptoms, began to eat, and to take cold drinks, as she did when in perfect health, and she is now quite restored. But the point to which I am anxious to fix attention, is this; before the removal of the irritative condition of the spinal cord, she experienced great opposition and difficulty in introducing the tube into the sigmoid flexure, but after its removal, the introduction of the instrument was effected with comparatively very little difficulty or opposition. This circumstance is strikingly illustrative of the direct and particular manner in which irritative states of the spinal marrow act upon the rectum, and cause it to become powerfully constricted. That the rectum is also directly and particularly influenced, but affected in a different way, by opposite or asthenic conditions of the spinal marrow, is evident from the paralysis of the rectum and its sphincters, and the

involuntary stools which invariably take place, whenever this great nervous centre becomes subjected, directly or indirectly, to a degree of compression sufficient either to suspend or abolish its functions, or seriously injure its structure.

I have detected the existence of spinal irritation in such a great variety of affections, in men as well as in women, though much more frequently in the latter, and always at such points of the spinal column as served to explain the morbid phenomena, that I have latterly, and with decided advantage, made it a sort of general rule to examine the state of the spine, particularly in obscure and obstinate cases, and where the patients are females. Until of late years, the subject appears to have been little, if at all known or attended to; and I cannot conclude it better than by referring such of my readers as may be anxious to acquire scientific views and sound practical information respecting it, to the 63rd and 64th volumes of the London Medical and Physical Journal, in which they will find a series of highly interesting and instructive papers by Doctor William and Mr. D. Griffin of Limerick.

MANIA.

I am indebted to my colleague, Doctor Ephraim M'Dowel, one of the surgeons of the House of Industry, and Richmond Surgical Hospital, for the following case.

“ On the 21st of February, 1830, Miss D., aged 17, and in whom the catamenia had become suppressed for some time previously, attempted to cut her throat. The wound, although extending from ear to ear, was fortunately very superficial, and the hæmorrhage trifling. Being discovered, immediately after, in this situation, one of my pupils, who happened to reside in the neighbourhood, was instantly sent for, and he dressed the wound. Shortly after, I was called to attend her, and finding her in a very sullen and melancholy mood, and that her bowels had not been freed for some time before she committed the act, ordered her infusion of senna, with tartarized antimony, which operated freely. During several days, she continued in the same sullen state, but at length became violent, and in short, so maniacal as to require restraint. Her bowels now becoming confined, large and repeated doses of calomel and cathartic extract, in the form of pill, were ordered and regularly administered, but without producing the least effect. Draughts of castor oil and oil of turpentine, of infusion of senna, electuary of scammony, tincture of jalap, and sulphate of magnesia were then exhibited, but also ineffectually. Croton oil, in doses of three drops at a time, and frequently repeated, was next had recourse to, but it likewise failed to move the bowels. Enemata consisting of infusion of senna, electuary of scammony, tincture of jalap, oil of olives, oil of turpentine, and sulphate of soda, administered by a

syringe to which the common ivory pipe was attached, proved equally unsuccessful ; and the same may be said of persevering friction of the abdomen with various kinds of stimulating liniments. At length, when the constipation had existed thus obstinately for seven days ; when the tongue had become furred, brown, and dry, the pulse feeble and intermitting, and the delirium of a low muttering nature, the tube of a stomach pump was passed up the rectum, and with some difficulty. As soon as it had reached the height of seven or eight inches, a loud burst of flatus, followed by a great and continued flow of liquid feces, took place from the tube, and produced immediate, decided, and general relief. As the bowels continued to act for nearly two hours after the tube was removed, no injection was thrown up, or medicine of any kind ordered. All this occurred about half-past eleven o'clock at night. She slept soundly that night. The following morning I found her pulse natural, her tongue moist and nearly clean, her strength greatly recruited, and she had scarcely any remains of delirium. From this period, the improvement in her mental and bodily health was progressive and rapid, and she recovered perfectly.

“ I have frequently employed the tube, in the same way, to remove obstinate constipation, and uniformly with the most decided success.”

The best commentary on this very valuable and interesting case, is itself ; for the manner in which it is related is such, that it places not only the impor-

tance of copious evacuation of the bowels in the treatment of the insane, but also the superiority of the tube as a means of effecting that most desirable object, in the strongest and most convincing light. But I am enabled to corroborate it, in every respect, by the evidence of the late Mr. Richard Gregory, who died a few months ago, deeply regretted by the profession and by all who ever had the slightest knowledge of him, and who had been, for several years, the principal medical attendant of an extensive lunatic asylum, and, it may be safely added, one of the best conducted and situated institutions of the kind in this kingdom. In concluding the details of two cases with which he favoured me, and which will be found inserted under the heads "Puerperal Fever," and "Strangulated Hernia," this gentleman expresses himself thus in favour of the practice as applied to the treatment of the insane: "As I have found," he says, "that by far the greater number of the patients who enter the Belle-vue Lunatic Asylum, at Finglass, near this city, have been so obstinately constipated as to resist for a long time the most active and drastic medicines, I have latterly been in the habit of having recourse at once to the use of the tube, and never without immediate success."

NARCOTIC POISONING.

At three o'clock in the afternoon of Tuesday, the 17th of April, 1832, Master Wellington F., six

years of age, strong and healthy, was given a cup of what was considered to be senna tea, for the purpose of freeing his bowels. Immediately after swallowing it, he cried out that he had got the cholera, became delirious, tossed himself convulsively upon a bed, attempted to bite himself, and every person or thing in his way, struck at and ceased to know the persons about him. As this occurred at some distance from the city I did not see him for nearly two hours after, when I found him sitting up in bed, speaking rapidly and incoherently, striking violently and spitefully at his attendants, attempting to bite himself, those about him, and every vessel or thing within his reach, at one time snatching at imaginary objects on the bed-clothes, at another darting upwards and endeavouring to seize something he appeared to see in the air; and while acting thus strangely, he would often, and with inconceivable rapidity, throw himself into the attitude and exhibit all the expression of a person straining every nerve to escape a precipice. His face was much flushed, and his whole countenance animated and lit up in a very peculiar manner, yet his eyes had something of a blind expression, and the pupils were rather more dilated than usual. He made no complaint of feeling pain in any part. At times he knew those about him; at others he appeared not to know them. The pulse was rather quick, the tongue clean, and the bowels remained confined. As soon as this singular scene permitted

me to make the necessary inquiries, I was informed that, nearly at the same time, a similar dose had been given to his sister, a child about four years and a half old, that it was as immediately followed by the same symptoms, but that in consequence of having quickly vomited up the whole, or nearly the whole of it, she was then quite well. This circumstance, together with the other features of the case, instantly convinced me that, instead of senna tea, an infusion of some narcotic vegetable had, by some unfortunate mistake, been administered to the boy. Accordingly my first step was to examine the vessel in which the infusion had been made, when I found that it contained about half an ounce of the herb and seeds of stramonium, which I immediately recollected having directed, some months before, to be smoked by the father of the child, for the relief of attacks of spasmodic asthma, to which he was occasionally subject. This important point being ascertained beyond all doubt, no time was lost in forcing about fifteen grains of hippo, the only emetic at hand, and a quantity of warm water, into the child's stomach, and afterwards irritating the fauces with a feather. By these means, copious vomiting was produced in a few minutes, but without any visible change or improvement in the symptoms. My next object, therefore, was to free the bowels as quickly as possible, and give exit to such portion of the deleterious infusion as they might happen to contain. Fortunately, my improved self-injecting ap-

paratus happened to be in the house, and I proceeded immediately to pass the tube up the rectum, and through it an injection prepared on the instant, and composed of warm water, castor oil, oil of olives, oil of turpentine, and sulphate of soda. In less than one minute after, a great quantity of flatus, and of solid dark green feces was discharged. A tea-spoonful of common vinegar was now administered every five minutes for half an hour; at the end of which time a table-spoonful of castor oil was given, the tube again passed, another injection of the same kind thrown up, and the bowels were again copiously freed, and discharged both solid and fluid feces of the same dark green colour. Shortly after, a slight improvement was observed in his general state. Cold cloths were ordered to be applied to the forehead, and a desert spoonful of equal parts of vinegar and water to be given every half hour throughout the night. He still continued to rave and act in an extraordinary manner, but becoming very violent about midnight, the tube was again passed, an injection given, and a considerable quantity of green and yellow fluid evacuated. Very soon after, he became calm, and fell into a sound natural sleep, which lasted for several hours. At nine o'clock the next morning, I found him in his usual health and spirits, and merely directed him to have some strong coffee occasionally, to take the most nourishing articles of food, and to be kept in bed for a few days.

I should have mentioned that the shortness of the tube (it being less than a foot in length) was the cause of my not proceeding at once to pump out the contents of the stomach.

This case presents an interesting example of poisoning by stramonium ; but it is not on that account, or for the purpose of showing the certain and rapid manner in which the introduction of the tube effects its objects, that it is introduced here. I have selected it chiefly with the view of enforcing the necessity of paying greater attention to free evacuation of the bowels than appears to be insisted upon or paid to it, in the treatment of narcotic poisoning. In this instance, next to the production of copious vomiting and complete evacuation of the stomach, I am decidedly of opinion that the recovery of the patient is to be attributed to the repeated free evacuation of his bowels. Every part of the case sustains the opinion, but none so decidedly as the concluding, in which the discharge of “a considerable quantity of green and yellow fluid” is mentioned as having taken place, and being quickly followed by sound sleep, and the complete disappearance of the violent cerebral excitement which existed but a moment before. Indeed, these circumstances would lead us to suppose that the fluid so discharged, consisted, partly at least, of a portion of the deleterious infusion which had passed from the stomach into the bowels. But it is only necessary to recollect, that

the stomach and the great nervous centres are all materially influenced by the state of the bowels ; that all narcotics are possessed of more or less of a constipating quality ; and that some portion of any poisonous substance taken into the stomach, must necessarily pass into the intestines, in order to see the urgent necessity of repeated evacuations per anum in cases of narcotic poisoning. Besides enabling us to effect this object with more certainty and expedition than by any other means, the introduction of the tube will enable us to inject vinegar and water, an infusion of coffee, or such other fluids as circumstances may render necessary, and so as to make them act upon a much greater extent of the surface of the large intestines, than could possibly be effected by any of the ordinary modes of proceeding. These are all advantages of the highest possible importance to the treatment of cases, in which life or death so often depends upon the promptness and energy with which proper measures are employed.

These observations appear to be equally applicable to the treatment of other kinds of poisoning, but as I cannot speak from actual experience, of the use of the tube in any of these, I shall refrain from indulging in mere speculation on the subject.

ABDOMINAL TUMOURS.

Mr. George P. of Mount P., in one of the western counties of Ireland, between sixty and seventy years of age, but robust, and accustomed

to hunting and other fieldsports, suddenly gave up all his favourite amusements, and, for nearly two years afterwards, led comparatively a very inactive life. During this time he enjoyed but indifferent health, gradually losing his usual good appetite, and becoming costive, flatulent, and unusually prominent and pendulous about the abdomen. At length the costive habit, and the difficulty of moving the bowels, became greatly increased, and he began to perceive a tumour forming on the left side of the lower part of the abdomen. By degrees, this tumour increased in size, and became so painful as to deprive him, in a great measure, of sleep; and receiving no relief from a variety of local applications, or the use of various purgative and other medicines, he decided on going to Dublin, where he arrived on the 31st of October, 1830, and immediately sent for me. After seeing him, and hearing the foregoing account of his case, I proceeded to examine the tumour of which he complained so much. I found it situated in the upper portion of the left iliac region, and its upper extremity on the same line with and near to the anterior superior spinous process of the ilium, but at a considerable depth. It was very slightly moveable, directed somewhat downwards and forwards, and much of the size and shape of an egg. By grasping it between the fingers and thumb, its anterior half could be distinctly felt, but, although rather compact and resisting, it did not communicate the feel of a very solid or

heavy mass, but every attempt to embrace it and feel its posterior half, proved ineffectual, and produced considerable pain. Mature consideration of these, as well as the other features of the case, induced me to assure the patient that the tumour consisted of indurated fecal matter collected in such a situation as would enable me to act upon and remove it, and, with it, his other complaints. Accordingly, the tube was passed up the rectum, but with some difficulty, and a strong fetid turpentine enema thrown up. Very little flatus, and only a few hardened balls of feces, were discharged. Looking upon this as a consequence of the flabby state, and greatly diminished expulsive power of the abdominal muscles, and seeing that he could not bear any artificial support of these muscles, the necessity of acting upon the bowels by medicines administered by the mouth, became evident, and he was directed to take a pill composed of two grains of the compound galbanum pill, two grains of the compound rhubarb pill, and one grain of powder of hippo, every second hour, and to wash down each pill with a wine glassful of a mixture consisting of equal parts of the infusions of senna, rhubarb, and quassia, and half an ounce of sulphate of magnesia. The bowels not having been freed, and receiving no relief, my patient requested me to call in an eminent medical gentleman, whom he named. This gentleman disagreed with me as to the nature of the case; considered the tumour to be external to, and not within the intestine; and recommended the tumour to be rubbed repeatedly

with the compound camphor liniment, and the purgative mixture, with the addition of aromatic confection, to be continued. This plan being pursued for a few days, and it also failing to give any relief, the patient was next seen by the Surgeon General, Mr. Crampton, who fully concurred in the opinion I had given of the case; and we agreed on adding two drops of croton oil to the pills previously ordered, to continue the purgative mixture, to repeatedly pass up the tube and administer the fetid turpentine enema, and, when the bowels began to act, to administer draughts of castor oil, oil of turpentine, and cinnamon water. By steadily following this plan, a considerable number of scybala, very little larger than so many peas, were discharged daily, the tumour gradually diminished in size, became less painful, and eventually disappeared on the discharge of a large indurated lump of excrement, followed by a quantity of fluid feces. He was now greatly relieved, directed to wear a belt large enough to embrace and support the whole of the abdomen, treated by mild purgatives and tonics, and in less than a fortnight returned home in tolerable health. Mr. Daly, of Henry-street, an eminent apothecary, was in attendance throughout the whole of this case, and assisted me in administering several injections.

In December, 1823, Mr. W. T. of C— House, Drumcondra, near this city, aged, 33, tall, slender, and sallow complexioned, had ulcers on the glans penis, which were considered to be venereal, and he was directed to use mercury internally and by

inunction. The ulcers soon healed, but, in six months after, others appeared in the fauces, which were also pronounced to be venereal, and he was again directed to use mercury in the same way. Soon after this course, the ulcers healed, but he became exceedingly weak, reduced in flesh, unusually costive, and he began to suffer severe pain in the region of the kidneys, and to pass urine loaded with lateritious sediment. At this time, also, the least excess in living, particularly in drinking wine, was followed by violent and uncontrollable vomiting; and, no matter how delicately he might happen to be circumstanced at the time, he was often irresistibly compelled to pass quantities of wind per anum. His appetite continued good, but experience taught him to confine himself to a small portion of the plainest food. His bowels required the constant use of purgatives, yet the discharges from them were always singularly scanty and black. In this state, and chiefly treated for a nephritic affection, he continued until March, 1831, when he lost all appetite, passed very little urine, and that high-coloured and loaded, became greatly constipated and flatulent, dropsical in both legs, and greatly reduced in flesh and strength; but, by the use of purgatives, diuretics, and tonics, he regained, and enjoyed for several months, a tolerable degree of health.

As far as I have been able to collect it, such is the history of the case previous to my seeing the patient on the night of the 21st of October, 1831. His countenance was then anxious and sallow, his

pulse regular, but weak, his tongue covered with a brown fur, his urine scanty and high-coloured, and stained the chamber pot of a delicate pink colour. He had had no discharge of any kind from his bowels for forty-eight hours, and, for several days before, he regularly vomited up every thing he ate or drank in about twelve hours after it had been swallowed. On examining the abdomen, which was found to be greatly swelled and tympanitic, yet not in the least painful on pressure, he directed my attention to a tumour of the size and shape of an orange, situated in the left iliac region, near to the anterior superior spinous process of the ilium, and extending above and below this process. It was very moveable, firm, hard, rather unequal, free from pain, and easily embraced by the fingers and thumb. He complained of "frequent rumbling of wind in the bowels, which he could not expel, and which seemed to be stopped at the tumour," and also of a sense of weight and uneasiness in the lumbar regions. My first step towards his relief, was to pass the tube into the colon. This being effected, but with unusual difficulty, a considerable quantity of wind, and some fluid feces escaped, and gave him such relief that no injection was thrown up, and he was directed to take a drop of croton oil immediately, to have a large belladonna plaster applied over the abdomen, and to take, at bed-time, a diuretic draught, composed of two ounces of infusion of juniper, a drachm of nitrous æther, and a scruple of acetate of potash.

22nd. Somewhat relieved ; no stool ; the tube introduced, and a fetid enema thrown up : no discharge from the bowels : ordered to take a table-spoonful of the quassia and senna mixture every second hour until the bowels are freed.

23rd. Rather better generally ; belly less swollen and tympanitic ; urine increased in quantity ; passed some flatus and fluid feces : mixture continued.

24th. So much better as to be enabled to go down to the parlour, and to take a little beef tea and bread with an appetite, and without rejecting either. Ordered to take twice during the day a wine glassful of infusion of bark, with bicarbonate of soda and lemon juice, and to have the diuretic draught as before at bed-time.

On the 25th I found his general state worse, in every respect, than when I first saw him. The tube was again had recourse to, and passed up with difficulty, but, nothing having escaped through it, more than a quart of warm water was thrown up, against his urgent entreaties to desist, and the whole of the fluid was retained. Suddenly, the patient raised himself up in bed, seemed to be dreadfully oppressed and dying from some violent internal struggle. Except myself, every person in the room, and there were three or four persons in it at the time, fled in terror, and I had barely time to throw up one of the windows, and run to his support. While supporting him with the left hand, I fortunately passed the fingers of the right into his mouth, irritated the fauces, and, in a few seconds, the stomach acted, and he discharged, by

vomiting, more than three quarts of fluid or, more properly, semifluid, and perfectly natural looking feces. As soon as he ceased to vomit, the pulse became fuller and firmer than I had ever felt it before, he expressed himself as feeling greatly relieved, took a little brandy and water, and he enjoyed tolerable rest that night. Before leaving him, however, I expressed my anxiety to have the aid of other advice. The next day I had the pleasure of meeting the Surgeon General, Mr. Crampton, who saw him several times, and gave me the ablest assistance, but ineffectually, for he expired in a fit of vomiting, at four o'clock in the morning of the 8th of November following. But the manner in which life was supported, during the last fortnight of his existence, is somewhat singular. He would eat solid animal food, take beef tea, jelly, and various articles of food for two days consecutively, without either vomiting or feeling any inconvenience whatever, but he never failed to evacuate large quantities of feculent matter by the mouth, on the third day. During this time, in short, the act of defecation ceased altogether to be performed by the anus, and continued to be effected by the mouth.

In about twelve hours after death, I proceeded, with the assistance of Dr. Mahon, of Temple-street, who acted as apothecary in the case, to examine the state of the abdomen, and the following are the appearances observed. The stomach, duodenum, jejunum, and the two upper thirds of the ileum, enormously distended with fluid feces, but no morbid alteration of their coats, except at a point

to be mentioned hereafter. The lower third of the ileum, the cæcum, the whole of the colon, and the rectum, as far as its pouch, contracted to the greatest possible degree, but also free from any morbid condition of their coats. A large tumour situated in the upper part of the left iliac fossa, and formed by a remarkably thick layer of firmly organized coagulable lymph enveloping, first, a turn of the ileum greatly thickened in its parietes, for nearly the extent of two inches above the commencement of its inferior third; secondly, about two inches of the sigmoid flexure in a highly contracted but perfectly sound state. In the interior of this turn of the ileum, and on that side of it next to the sigmoid flexure, a circular opening lined with a dark red fungous membrane, large enough to admit the thumb, and leading into a kind of cavity situated between the ileum and sigmoid flexure; and the passage from the upper portion into the lower third of the ileum so narrow as scarcely to admit a good sized quill. All the other viscera of the abdomen and pelvis perfectly sound.

The first of these cases is highly illustrative of the injurious effects which an inactive life, or a sudden change from active to inactive habits produces on the abdominal muscles, and, through these great expulsive agents, on the functions of the intestinal canal. The second fully establishes a point upon which I have insisted; namely, that when, from any cause, the alvine contents are forced to remain in the small and prevented from

entering the large intestines, they will become in due time as perfectly feculent in the former as in the latter situation. But the main object with which I have brought these cases together, and ranged them under the same head, is to exhibit and contrast two very different kinds of tumours, which may be met with in the abdomen, and which appear to be little, if at all, understood. In one of these, the tumour is situated either in the right or the left iliac region, but much more frequently in the latter; it consists of indurated excrement accumulated within either the cæcum or the sigmoid flexure of the colon, and is removable by the tube and by other means. In the other, the tumour may occur at any part of the intestinal canal; it is the result of disorganization and thickening of the parietes of a portion of intestine, and is not removable by the tube or by any other means. When, as in the instances before us, they occur so nearly in the same situation, they may be confounded, in consequence of both being necessarily attended by nearly the same disordered state of the stomach and bowels; but I apprehend that the greater weight and solidity of the latter, and, above all, the much greater facility of embracing it with the fingers and thumb, will always be found sufficient to distinguish it from the former. Even this slender addition to our knowledge of the subject is important, for, notwithstanding the labours of M. Piorry and others in this department of surgical science, few cases continue to be more obscure, to be oftener mistaken, or to be more perplexing, than

those in which the surgeon is expected to decide upon the nature and probable termination of tumours in the abdomen. This fact is so generally admitted, that it requires no exemplification, and will amply excuse my digressing somewhat from the main object, in order to introduce the following case in point, on account of its intrinsic interest, as well as the obvious necessity of accumulating as many facts respecting the subject as possible.

About two years ago, Mrs. M., beyond fifty years of age, the mother of several children, and in whom the catamenia had ceased, consulted two medical gentlemen of this city, one an eminent surgeon, the other an eminent accoucheur, for a large tumour in the abdomen. These gentlemen informed her that it was closely connected with the uterus and ovarium. She was next seen by the Surgeon General, Mr. Crampton, and myself. The tumour was as large as the head of a newborn infant, rather firm and elastic to the feel, situated in the umbilical and partly in the epigastric region, and so moveable and free from pain, that it could be made to occupy either of the corresponding lateral regions, without difficulty or causing any uneasiness. Pressure made no alteration in its size or feel. She stated that her appetite was good, that her bowels were regular, and that she could only complain of the inconvenient weight and size of the tumour. After making a careful examination externally and by the vagina, we could discover no connexion between the tu-

mour and the uterus, or between it and either of the ovaria. Our patient seemed greatly gratified and relieved by hearing the result of our examination, for she “feared that the swelling might be of a cancerous nature by being connected with the womb.” We directed her to wear a belt sufficiently large to support the tumour and the whole of the abdomen. She followed our advice, returned to her residence in the King’s County, and in about three months afterwards, the tumour suddenly disappeared, without being either preceded or followed by any kind of discharge per anum or per vaginam, or, in short, by any remarkable occurrence. In two months after this happened, it reappeared while under the influence of a serious fright, and still exists. In July, 1831, she perceived another swelling about an inch below the umbilicus, and as nearly as possible in the median line. This was found to be a hernia, for which she still continues to wear a truss. About the same time, she suffered from prolapsus uteri, and ever since has been obliged to wear a light wooden pessary. In the December following, the whole of the abdomen began to gradually enlarge, and she is now (September the 10th, 1832,) declared by her medical attendants in the country to labour under ascites : her urine is scanty and high-coloured ; her appetite is good ; her lower extremities are free from œdema ; and she is able to take air and exercise.

In reference to the tumour for which Mr. Crampton and I were consulted, I do not well

recollect what our opinions of it were, but I feel bound to admit, that, as far as I was concerned, I was totally unprepared for its disappearance in the manner described. Was this tumour formed by hernia of a considerable portion of the intestines through a large opening or rent in the mesentery, or in the mesocolon? Such openings or rents have been produced by violence, and certainly the circumstances of the case would seem to favour this opinion.*

STRANGULATED HERNIA.

It is manifest that the openings or rings through which portions of the intestinal canal escape from the abdomen and form herniæ, cannot, from their tendinous nature, as well as from their peculiar formation, be considered as acting otherwise than as passive agents in causing strangulation, and that, with the single exception of cases in which the neck of the hernial sac becomes considerably thickened and contracted, strangulation is always caused by the prolapsed portion of intestine becoming so distended, generally by the gaseous and very rarely by the fluid or solid contents, as to be pressed forcibly against the margins of the opening or ring, and to be no longer capable of repassing through it,

* Since writing the above, I have ascertained that the tumour above referred to disappeared, for the second time, early in October last, and has not since returned. This fact also appears to confirm the view I have taken of its nature. I have also been informed that the operation of paracentesis abdominis was performed very shortly after the tumour in question had disappeared.

and returning into its natural situation in the cavity of the abdomen. These points have been ably and successfully urged by Wilmer,* Geoghegan,† and others, and seem to be now generally admitted and acted upon. But these and all other writers have failed to notice or to take advantage of another self-evident and very important fact respecting the condition of an intestine so situated ; namely, the fact that strangulation can never be so tight or excessive as to prevent a more or less free passage of air through the hernial tumour. The very circumstance of strangulation being an effect of pressure exerted from within, not to speak of the exceedingly subtle and permeating quality of air, and the force with which it acts, would even show that in such cases the gaseous contents must circulate with considerable freedom.

Such being, with the exception already mentioned, the actual state of the facts respecting the manner in which an intestine becomes strangulated, and the condition in which it is afterwards placed, it must be obvious that the volume of an intestine so situated, must be diminished to a certain extent, before reduction can be effected. Hence the taxis is so natural and often so successful a mode of effecting this object. But when attempts at the taxis have been made with sufficient

* Cases and Remarks in Surgery, &c., by B. Wilmer, p. 3, et seqq. London, 1779.

† A Commentary on the Treatment of Ruptures, by Edward Geoghegan, p. 28, et. seqq. London, 1810.

force, and continued for a reasonable time, but ineffectually ; and when the hernial tumour has, perhaps, become tense and painful, and the constitutional symptoms are urgent, it becomes a most important and interesting subject of inquiry, to consider how far the other means generally employed to reduce the volume of the strangulated bowel, are capable of answering that purpose, and if they are not, whether there are any means left untried which would effect it, and rescue the patient from the terror, suffering, and danger of an operation.

Wilmer, Geoghegan, and others, proposed to effect this desirable object by the application of ice, and different refrigerating mixtures to the tumour. Unquestionably, these applications are well calculated to lower the augmented temperature of the part, and to condense its rarefied gaseous contents ; but inasmuch as the intestinal canal is so constructed as to be always filled, or nearly so, with air, and as air passes freely into and out of the prolapsed intestine, it is obvious that, in proportion as the gaseous contents of the tumour become condensed, the space so created will be occupied by flatus coming from that great portion of the canal which remains within the cavity of the abdomen, and that the protruded intestine will thus be left fully as large and as distended as before. Hence it is that refrigerant applications have so often failed in effecting the objects for which they were employed.

Copious blood-letting and the tobacco enema, which are so much relied upon, act as nearly as possible in the same manner,* and may serve to

* In the fourth volume of the Transactions of the King and Queen's College of Physicians in Ireland, published in 1824, I have inserted a paper "On the Use and Advantages of Tobacco in the Treatment of Dysentery." In that paper I have shown, for the first time, that tobacco produces with great certainty all the effects, without any of the disadvantages, of copious blood-letting; and I have detailed a number of cases in which it was successfully employed to subdue inflammation of the mucous membrane of the intestines. Since that period, the fact appears to be generally admitted, and the practice has been extended, with decided advantage, to the treatment of other inflammatory affections of the bowels. Under such circumstances, would it not be much better, in cases of strangulated hernia, to depend solely on tobacco, the effects of which are but temporary, than to abstract such great quantities of blood as are required in such cases, and leave the patient in a state from which it may require months of care and management to recover him? Few men living have devoted so much time to the medical literature of this plant, or have employed it more successfully, or in a greater variety of diseases, than I have, and I do not hesitate to assert, that the effects would be precisely the same, and the advantages such as would fully justify the preference. I am decidedly of opinion, also, that the practice of employing, in such cases, copious bleeding, and if that fails, the tobacco enema, is neither scientific nor free from danger, for, under such circumstances, it is always difficult to accurately regulate the action of tobacco, or proportion its dose to the various circumstances necessary to be then taken into account; such, for instance, as the period of life, degree of strength, and idiosyncrasy of the patient, and the quantity of blood which may have been taken away. But highly as I value the therapeutic properties of the plant in other cases, I hope to yet see both it and copious bleeding superseded by a better and safer mode of effecting the reduction of strangulated hernia.

prevent an attack of inflammation, or to arrest its progress, but when employed as means of effecting reduction, they appear to be considered to act by relaxing the openings or rings through which herniæ protrude; whereas it is evident that these parts are quite passive in opposing reduction, and so constructed as to be little, if at all, affected by these or any agents that we know of, mechanical violence alone excepted. These remedial means must act differently, therefore, and, whenever they prove successful, the following appears to me to be their mode of acting. By making a powerful impression on the whole of the muscular system, they deprive the muscular coat of the rectum of its usual contractile power, cause the intestine itself to relax, and to give exit to the air confined in the colon. The effect of this is to create such a current of flatus from the small into the large intestines, as to eventually evacuate that which distends the portion of intestine which may happen to be strangulated, and thus favour reduction. It may be objected to this view of the matter, that it is mainly founded on an assumed fact. I admit the validity of the objection, for I am not prepared to assert that flatus always escapes per anum, previous to reduction being effected by means of blood-letting or of tobacco. But I have assumed it as a fact, first, because the patient is so likely to conceal or not to mention it; secondly, because the surgeon is so likely to omit making inquiry respecting it; thirdly, because, hitherto, no importance has been attach-

ed or attention paid to the occurrence, even in cases where, as has often been observed, herniæ have resisted presevering attempts at the taxis, and have afterwards returned unexpectedly, and, as it were, spontaneously. This much, however, is certain, that the principles upon which the foregoing explanation is offered, must either be admitted to be sound, or we must be prepared to prove, that copious bleeding and a full dose of tobacco make but a partial and weak impression on the muscular system, that muscular fibre does not enter into the structure of the rectum, that strangulation is produced by the rings, and not by air or other matters distending the prolapsed intestine, and that the rectum and the sphincter muscles of the anus are not in a contracted, but a relaxed and paralytic state. But to return to the consideration of the point under discussion, both bleeding and tobacco are objectionable as means of effecting reduction. In very young, weakly, or aged subjects, bleeding to the extent required, is not free from danger, and carried even to the boldest extent in strong plethoric persons, it has been too often known to fail in rendering the hernial tumour more reducible. Tobacco, although its effects are not permanent, is liable to precisely the same objections, and requires great caution and judgment in proportioning its dose to the age and other circumstances of the patient, particularly if blood-letting has been freely employed. These are all great and decided objections.

It appears, then, that the application of ice to the hernial tumour, the copious abstraction of blood from the arm, and the exhibition of tobacco enemata, are all exposed to strong objections, and unworthy of being confided in as certain modes of effecting a diminution in the volume of the strangulated portion of intestine. The question, therefore, proposes itself, is there any other more certain mode of accomplishing this object, that has not been either proposed or tried, and that is, at the same time, free from all objection? It appears to me that there is. It is this. To introduce a gum elastic tube into the colon, and to leave it there until the large intestines, and eventually the hernial tumour are emptied of their gaseous contents. If the bowels happened to be well freed, or to contain but a small portion of solid feces, at the time the strangulation took place, success might reasonably be expected from this mode of proceeding; and if they happened to be loaded with solid matter at that time, it would only be necessary to introduce the tube more frequently, and at intervals of a few minutes between each introduction, first, to empty the sigmoid flexure, secondly, the cæcum, thirdly, the hernial tumour, in order to effect the object in view. It is no argument against the proposed plan that Mr. Hey* and other experienced practi-

* Practical Observations on Surgery, by William Hay, F. R. S., p. 117, et seqq., 2nd edition. London, 1810.

tioners, have declared that evacuations from the bowels rarely effect the reduction of a strangulated hernia ; for it should be remembered that, on such occasions, the rectum contracts the moment it has discharged its contents, and permits but a comparatively small and insufficient quantity of wind to escape, whereas, according to the mode which I propose, the flatus is offered every facility of passing off in a continued stream, and for as long a time as may be found necessary. In one case the contents of the flexure and a portion of the gas contained between it and the cæcum, are evacuated, while the latter is left distended ; so that if the bowels should happen to contain much fecal matter, such is the peculiarity of the process by which the cæcum and sigmoid flexure are filled and emptied, and such the rapidity with which the rectum contracts after discharging itself, that repeated stools may take place, without producing any favourable impression on the strangulated portion of intestine. In the other case, no matter how distended it may be, we have it fully in our power to rapidly empty the whole of the intestinal canal, and thus insure the reduction of its strangulated portion.

It is only within the last half year that I have entertained the foregoing views of the subject, and it has so happened that I have had but few opportunities of giving them a practical application. Consequently, I cannot speak of them with all the confidence that I could wish, and shall merely relate all the cases in which I have tried the pro-

posed plan, add such facts and observations as may be necessary, and then leave the reader to form his own opinion of the practice, as well as of the principles upon which it is founded.

Mary Bentley, twenty years of age, admitted, at 10 o'clock in the morning of Tuesday, August the 16th, 1831, into the Charitable Infirmary, Jervis-street, under my care. On the right side, immediately below the pubal attachment of Poupart's ligament, and slightly ascending over this ligament, she has a tumour which is as large as a walnut, tense and painful, yet not discoloured. It imparts all the feel of an entero-epiplocele, and is attended with the following symptoms, viz., anxious and painful expression of countenance, jactitation, nausea, vomiting, constipation of four days' duration, pain on pressure of the abdomen, particularly over its umbilical and hypogastric regions, tongue brown at its base and along its centre, great thirst and heat of skin, pulse 100, hard and contracted. She states that at 9 o'clock on Sunday morning the 14th, she had been pumping water to supply her master's house; that, at 2 o'clock in the afternoon, she was seized with sickness of stomach and violent pain in the belly; that she vomited repeatedly during the evening, retired early to bed, and there, for the first time, discovered a tumour in her groin, and pain and difficulty in extending the right thigh and leg. She adds that she went the following morning to the next apothecary, who gave her some pills and an injection, but without affording any relief. The apothecary she men-

tions has had the humanity to attend her to the hospital, and this gentleman states, that, suspecting the nature of the case, he gave her pills of calomel and cathartic extract, and a tobacco enema, and that he could not be deceived in asserting that he saw her vomit stercoraceous matter. It does not appear, however, that she has had what could be considered as fecal vomiting, since her admission into hospital.

Blood, which was afterwards found highly buffed and cupped, was now taken from the arm by a large orifice, and until she became very faint. The taxis was then tried by me, and subsequently by my colleague, Mr. Adams, but without the least success. We agreed that a tobacco enema should be administered as soon as possible, and if it also failed, to lose no time in performing the operation. In the mean time I mentioned to Mr. Adams my peculiar views respecting strangulated hernia, and proceeded to pass the tube into the colon. The moment this was accomplished, a considerable quantity of flatus escaped through the tube, and on quickly laying my fingers flat on the tumour, I found that it was diminished by at least three-fourths of its former size, and that it gave the feel of containing omentum only. Mr. A. and several pupils were present, and satisfied themselves of the reality of this important change in the hernial tumour. In a few minutes all nausea and vomiting ceased, the pain she felt was inconsiderable, and she was directed to have, as soon as possible, a mild enema

administered by the tube. In less than half an hour after, the tube was again introduced, and gave exit to about half a pint of fetid fluid feces. The enema was then thrown up, and she was ordered to have ice applied to the groin. Three o'clock, P. M., tumour very small and inelastic; slight tenderness of abdomen; bowels not freed; pulse 92, full and hard. Directed to have the tube introduced, another enema to be administered, and to take two pills composed of five grains of calomel and five grains of compound extract of colocynth. Ten o'clock, P. M., has had several copious fluid evacuations within the last three hours, and she is now greatly relieved.

Wednesday, 17th, 9 o'clock, A. M. Slept well last night, and has had several free motions. The abdomen is now rather tender to the touch; tongue cleaner; pulse 98. Thirty leeches to be applied to the abdomen; directed to take a wine glassful occasionally of a mixture composed of equal parts of infusion of senna and infusion of quassia. Seven o'clock, P. M., rather weak, but has no tenderness of the abdomen.

Thursday, 18th, 9 o'clock. Reports herself as feeling perfectly well in all respects. In the course of a few days, a truss was applied, and she was discharged free from all complaint.

On the sixth of May, 1832, Mr. Fea, a surgeon of this city, requested my assistance in the case of David Kearney, a poor man residing in a stable lane, at the rere of Summer-hill, and 65 years of age.

On seeing him, I found that he had a large, tense, and rather painful scrotal hernia on the left side ; and he stated that he had been afflicted with this rupture for thirty-five years, but that he could always reduce it until four days before. His abdomen was swollen, tympanitic, and rather painful on pressure ; his pulse 80, full, and intermitting ; his tongue moist and rather clean ; his bowels were obstinately constipated, and he had nausea, but no vomiting. Finding that Mr. Fea's attempts at the taxis had failed, and having satisfied myself that all such attempts were fruitless, I recommended the tube to be introduced into the colon. This was immediately done, but no flatus or feces escaped, no visible change occurred in the state of the hernial tumour, and, on withdrawing the instrument, some inches of its upper extremity were coated with solid feces. Shortly after the tube was again introduced, and through it a fetid turpentine enema administered. In a few minutes, he discharged a quantity of solid feces and some wind, but without producing any impression on the tumour, or any alteration in the general symptoms. Under these circumstances, I advised his immediate removal to the Richmond Surgical Hospital, and gave an order for his admission ; but being obliged to go some distance from town, I was under the necessity of placing him under the care of my colleague, Dr. M'Dowel, who found it necessary to perform the operation soon after his admission, and has favoured me with the following particu-

lars. On exposing the strangulated portion of intestine, the longitudinal bands and the appendices epiploicæ, the latter remarkably fatty, left no doubt of its being formed by the colon; anteriorly, its surface was found to be considerably congested, but posteriorly and externally, it was adherent to, or rather identified with the sac, and its cavity so stuffed with hardened excrement, that it could not be emptied without dividing the ring to a considerable extent. This being done, the excremental contents were pushed up, the protruded intestine was left in the scrotum, the parts were brought together by five points of suture through the skin, and the patient was placed in bed, with directions to have immediately 30 drops of tincture of opium, and an ounce of cinnamon water, as a draught, and also an enema consisting of half an ounce of oil of turpentine, one ounce of oil of olives, one ounce of compound tincture of senna, and ten ounces of warm water.

7th. Eight o'clock, A. M. Has been restless and in pain, and has had no motion during the night. The abdomen is now very tense and tender, and he complains much of pain in the scrotum; he has no thirst, nausea, or vomiting, the pulse is 78, regular, and soft, the tongue is clean, and there is rather a defined fulness above the pubes. Catheter introduced, and a pint of high-coloured urine drawn off. Ordered to have weak beef tea ad libitum, to take a draught of castor oil, compound tincture of senna and cinna-

mon water, to repeat this draught in four hours, if necessary, to have an emollient enema immediately, and a poultice to be applied over the scrotum.

8th. Copious discharges from the bowels; tongue white and slightly furred; pulse 102, and feeble; slight singultus; constantly sleeping, or rather in a state of stupor, and difficult to be roused. A blister applied between the scapulæ.

9th. Cold and insensible; pulse scarcely to be felt; respiration 25 in a minute; mucous rale in the trachea; frequent singultus. Died about noon.

The impression which the state of the patient subsequent to the operation, made upon Doctor M'Dowel's mind, was, that he laboured under the effects of constitutional irritation, and not under those of inflammation. He acted accordingly, and the post mortem examination shows that he was right, for no inflammatory or other morbid appearance could be discovered within the abdomen.

On the 24th of July, 1832, I accompanied Dr. Maxwell Fleming and Mr. Richard Morrison, both surgeons of this city, to see Mary Dunne, residing at the North Strand, and aged 30. We found her vomiting frequently, very restless, and complaining of intense pain all over the abdomen, particularly about the umbilicus. Her belly was tense, and painful on pressure, her countenance anxious, her pulse quick, small, and hard, her tongue foul,

and her bowels had been obstinately constipated for several days. She stated that, two days before, she had felt something gave way in her groin, on making an effort to lift a heavy weight, and that she soon afterwards felt sick at the stomach, pain in the belly, and a painful swelling in the right groin. On the right side, there was a femoral hernia, which Doctor Fleming had previously failed in reducing; and in front of the hernial tumour, which was of a moderate size, and felt as if it contained intestine only, there was an enlarged and rather painful inguinal gland. I recommended the tube to be introduced, and if doing so failed in causing the hernia to return or in rendering it reducible, to throw up a tobacco enema. It so happened that circumstances prevented me from waiting to see these means employed, but on returning in less than an hour, Dr. Fleming and Mr. Morrison informed me that no flatus or feces had escaped through the tube, that its introduction was followed by no change in the hernial tumour, that accordingly an injection, composed of half a drachm of tobacco and a pint of warm water, had been thrown up, and that not finding any favourable change, another of the same description had been administered. But I soon perceived the cause of failure, for the tube used on the occasion was not one of the description that I employ. It was one of those which have been manufactured here, and are considered an improvement on mine.

For the purpose of rendering it more portable, it was made of two gum elastic tubes, joined by a brass male and female screw, so as to form a tube of a foot in length, and having at its centre a projection of brass sufficient to effectually prevent either of its ends from being introduced to a greater height than five and a half or, at the most, six inches, without using great violence, and inflicting serious injury on the rectum. Accordingly, it actually was not introduced higher. I now examined the hernial tumour, and it appeared to me to feel less tense ; but, be this as it may, very little effort enabled me to reduce the intestine, which retired with the usual gurgling sound, and the patient felt at once greatly relieved. She continued to vomit, complained of pain in the head and of great weakness, felt exceedingly cold, and her pulse was very weak and slow ; but these were obviously nothing more than the specific effects of tobacco. Two more enlarged inguinal glands were now felt in the situation which the hernial tumour had occupied, and as these were very painful, she was immediately sent to the Richmond Surgical Hospital, and placed under my care. In a few hours after admission into hospital, eighteen ounces of blood were taken from the arm, a turpentine enema was administered, she was directed to take, every third hour, a pill composed of two grains of calomel and three grains of compound extract of colocynth, two dozen of leeches, and, afterwards, a large emollient poultice, were ordered to be applied to the en-

larged glands. The bowels were soon freely moved, the glands gradually returned to their natural state, and, after applying a proper truss, she was discharged from hospital on the 4th of August following.

In the first of the three foregoing cases, the proposed plan is seen to have been attended with the happiest and most encouraging results. In the second, the strangulated portion of intestine was found to be so completely filled and impacted with indurated feces, and so firmly fixed by adhesions to the sac, that no plan of the kind could possibly have succeeded in such a case. In the third, the reduction of the hernia appears to have been owing to the effects of tobacco, and not to the introduction of the tube, yet, as the tube employed on the occasion, did not enter the sigmoid flexure of the colon, it must be admitted that, under such circumstances, the practice cannot be considered to have been submitted to a fair trial. Upon the whole, therefore, the opportunities I have had of putting this mode of treatment to the test, have not been either sufficiently numerous, or of a description to decide the point. But I am enabled to quote a case of strangulated hernia, in which the rectum was dilated solely for the purpose of removing stricture of that intestine, and was quickly followed by reduction of the hernia. It is the only instance of the kind that I have been enabled to find on record, and it is certain that, long before I adopted the present views on the sub-

ject, I had frequently read this case without seeing its true bearing, or considering its most remarkable feature in any other than in the light of a purely accidental occurrence. But this circumstance will cease to be surprising, when we refer not only to the work itself, but to the various reviews which have been given of the work, for it will then be seen that neither the author nor his reviewers have viewed it otherwise, or have in any way noticed or suspected the existence of that connexion between the reduction of the hernia and the dilatation of the strictured rectum, which will now be so very evident. The following is the case to which I allude. I have taken the liberty, however, of putting in italics the particular passage to which I am anxious to direct attention.

“A lady, about 40 years of age, who had been affected with an umbilical hernia for many years, was seized with violent pain in the abdomen and vomiting, and had not had any evacuation from the bowels for seven days. The rupture was painful to the touch, was of the size of a very large orange, and had been incapable of reduction for twenty-four hours. Her pulse was quick and weak; she had been taking large doses of calomel, and other strong purgative medicines, without effect. In this state Mr. Ford was called to her, and I saw her with him; the rupture could not be returned by any effort that was thought prudent, and the vomiting, together with hiccough, was increasing in severity; she was bled, and directed

to take some pills, with calomel and extract : colocynth : and an injection of the tobacco fume was, with considerable difficulty, thrown up the rectum. It was proposed, that if these means failed of giving her relief, the operation to return the hernia should be performed without further delay.

“ She now happened to tell us, that she had been for many years of so costive a habit of body, that she could never pass her stools without great pain and difficulty, and seldom without the assistance of glysters, and that they were always very small in size.

“ These circumstances led to a suspicion that the seat of the disease was not in the hernial sac, but in the rectum ; and, on passing the finger to examine the gut, a firm indurated stricture was discovered about two inches up the intestine, which would not admit the point of the finger to pass it.

“ *A rectum bougie, of a small size, was introduced high up the gut, and retained there about ten minutes. Soon after it was withdrawn, there was a copious evacuation of the fæces, the vomiting ceased, and the rupture soon returned spontaneously ; in short, all her complaints disappeared, and she was in the same state as before the attack.* By persevering in the use of the bougie, the stricture gradually enlarged, and in a fortnight she could pass her stools better than she had done for many years : she continued, however, daily, to pass the bougie for about a month, and then used it only occa-

sionally. This is now seven years ago; and I saw her very lately for another complaint, when she informed me, that she remained perfectly well of the stricture; but from fear of a return of her disease, rather than from necessity, she now and then passed the bougie, for a short time, and withdrew it again.”*

In this case, the introduction even of a solid instrument up the rectum, is seen to have effected reduction as well as if a gum elastic tube had been introduced; but it is unnecessary to repeat here the arguments which have been urged in support of the latter as a superior instrument, and one infinitely better calculated to accomplish this great object. It will be seen, also, in this case, that the author has unintentionally, and without having any such preconceived views to serve, supported the practice by facts, and in language too strong to be misconceived.

The reader has now before him all the information in my power to afford on the subject, and I am not without hopes that he will here find both reasoning and facts sufficient to induce him to give the plan a full and fair trial, and that he will not condemn it, should he find it to fail in cases where the neck of the sac is found to form the stricture, where the strangulated intestine is ad-

* Observations on the Principal Diseases of the Rectum and Anum, by Thomas Copeland, p. 116, et seqq., 2nd edition. London, 1814.

herent to the sac, or filled and impacted with indurated feces, or where the case is merely one of epiplocele. On the contrary, I am sure that he will give the plan a perfectly fair trial, and that, for this purpose, he will select cases of recently strangulated enterocele, or entero-epiplocele. In such cases, and they are invariably the most urgent and dangerous, I am sanguine enough to expect that it will often be found to obviate the necessity of performing the operation. It appears also to be peculiarly applicable to the treatment of those rarer kinds of cases, in which hernia of an intestine through the diaphragm, or in other situations out of view, is suspected to have taken place, and to have become strangulated.

The proposed plan can do no injury whatever, causes little or no delay to the employment of other means, and may be tried immediately after a reasonable attempt at the taxis has been made, and has failed. Should the first introduction of the tube not give exit to either flatus or fluid feces, and should the peculiar feel communicated, as well as the previous history, lead us to suspect the presence of a solid mass of feces in the sigmoid flexure, the enema catharticum, with the addition of an ounce or two ounces of castor oil, should be thrown up, in order to bring away this mass. If after the bowels have been moved, no favourable change takes place in the hernial tumour, the tube should be again introduced, and if the same happens, the same process should be gone through,

and repeated until the bowels are completely freed. Once this object has been accomplished, it is to be presumed that another introduction of the tube will either enable the intestine to return *proprio motu*, or place it in a situation to be returned by the taxis.

In recommending this mode of proceeding, it will be observed that I have rejected the use of the tobacco enema. The reason is this. As it is commonly administered, the tobacco infusion is thrown into the rectum, and by means of its great antispasmodic power, relaxes this intestine, and thus permits the contents of the bowels to pass off; but as it exerts the same relaxing power over the abdominal muscles, and the muscular structure of the whole of the intestinal canal, the great expulsive agents are also more or less paralysed, and rendered incapable of performing their proper office. When used for the purpose of freeing the bowels, I have uniformly observed the tobacco enema to act thus, and to counteract the loss of expulsive power, have found it necessary to administer croton oil and other stimulating purgatives, in order to purge the patient. Such an enema, therefore, would be more prejudicial than useful in a case where, after the tube has been introduced into the colon, the indication evidently should be to moderately excite, not to paralyse, the action of the abdominal muscles and intestinal canal.

There still remains another very important

point connected with the subject of strangulated hernia, to which I have to direct attention. It respects the state of the patient, and his treatment, after he has submitted to the operation, and may be put thus. If purgatives are not employed, he will rarely have natural stools until some hours after the operation; and if purgative draughts and injections are administered, they must necessarily be of the mildest kind, and will generally require a few hours to operate. In either case, it must be admitted that he is left for hours in an insecure state, and that the sooner his bowels are freely moved, the greater will be the certainty of his recovery. It would be, therefore, a very great advantage to have the means of freeing the bowels as early as may be wished after the operation; and my experience, I am happy to say, enables me to assert that this advantage may be attained, with great certainty, by the introduction of the tube, and the use of mild enemata. But every experienced surgeon is acquainted with the fact, that although the operation may be ever so well performed, and the ordinary means ever so actively employed, it will occasionally happen, particularly in cases where the operation has been too long delayed, that vomiting, tension and tenderness of the abdomen, and constipation will continue, and the patient die of peritoneal inflammation. Yet even in so extreme a case as this, it will be found that the timely introduction of the tube, together with the other necessary means, will generally enable us to

free the bowels, overcome all dangerous symptoms, and ultimately to save the patient's life. That this is the fact, will be seen by the following case communicated to me by my much regretted friend, the late Mr. Richard Gregory, some years before his death.

“Some months ago, I found it necessary to perform an operation for strangulated inguinal hernia, of the right side, on Mr. C., a farmer, living at Ballymun, a few miles from Dublin. About ten hours after the operation, seeing that the very active means used to free the bowels, had proved ineffectual, and finding the abdomen becoming more and more painful and distended, I passed an œsophagus tube up the rectum to the height of seven or eight inches, and injected through it six pints of the fetid enema, with a glassful of turpentine. The bowels were very soon afterwards freely moved, and the patient recovered perfectly. Very recently, the hernia (also inguinal, intestinal, and on the right side) again became strangulated, and I was again compelled to operate on him. The same obstinate constipation ensued, and the same means alone succeeded in overcoming it. Mr. C. is now living and well.

In point of fact, this is not a single but a double case, and exhibits two striking examples of the success which may be expected from the employment of a similar plan in similar cases.

The above case is also remarkable and highly instructive in another respect, for the fact of one

of the inguinal rings having been divided by the knife, and, of course, considerably weakened, and of the same ring becoming soon after the seat of strangulation, affords rather a strong presumptive proof that the margins of these openings cannot be active but passive in preventing reduction.

COLIC.—ENTERITIS.

Late in the evening of the 6th of Sept., 1826, the servant of Mr. W. K., of Mecklenburgh-street, called to request my immediate attendance on his master, who was, he said, “dying from cramps in his stomach.” I found the gentleman sitting up in bed, doubled forwards, and complaining of the most acute pain in the epigastric region; his countenance was pale, contracted, and expressive of great agony, and his pulse scarcely to be felt. On inquiry, I found that his bowels had not been moved for many days; that he had been subject for years to attacks of what he called cramps in the stomach; that brandy, laudanum, æther, and other such remedies, had always relieved him; but that, on this occasion, he had had recourse to them without experiencing the slightest relief. Having brought the tube with me, I proceeded at once to pass it up the rectum. The obstruction to its passage was inconsiderable until it reached the height of eight or nine inches, when it became necessary to press up the instrument much more firmly, in order to make it enter the colon. The moment that this was effected, a burst of flatus took place

through the tube : the patient instantly exclaimed, "I am quite relieved," and both his look and manner declared that this was the case. No injection being at hand, the tube was withdrawn, he was directed to take a purgative draught, and to have a fetid enema administered as soon as possible. Soon after, his bowels were freed, and he was perfectly well the next day. From that period to the present, I have ascertained that he has not had any return of the cramps, although, according to his own account, he had previously been accustomed to have two or three attacks of them every year.

On the night of the 13th of May, 1832, Catherine Doyle, aged 29, of robust constitution, and maid-servant of Mr. F., of Baggot-street, was attacked, as the family supposed, with Asiatic Cholera, and Professor Harrison and I were immediately called to her assistance. We found her vomiting, complaining of excruciating pain in the abdomen, and tossing her arms and body about in great agony. Her countenance was pale and anxious, her pulse quick and hard, yet rather small, and the whole of her abdomen tense and painful to the touch. On inquiry, we collected from her, but with difficulty, that her bowels had not been moved for several days, and that, during the greater part of that day, she had experienced rigors, nausea, and considerable pain and twisting about the navel. More than twenty ounces of blood were immediately taken, by a large orifice,

from her arm, and relieved her considerably. She was then directed to take a bolus of six grains of calomel, and to have a fetid enema, with oil of turpentine, administered to her by the common enema syringe, as no tube was at hand or could be procured at so late an hour of the night. These means failing to move her bowels, she was ordered to have a large blister applied to the epigastrium, to have the rest of the abdomen stuped with a strong infusion of tobacco, and to have an enema composed of half a drachm of tobacco infused on a pint of boiling water for half an hour, and allowed to cool sufficiently for use. The following morning, we found that she had passed a very uncomfortable night, and that she had not passed more than a very small quantity of fluid feces. The blood drawn the night before was now seen to be highly buffed and cupped, and her abdomen was still tense, and rather tender to the touch. The tube was now passed, with considerable difficulty, into the colon, and through it a fetid enema, with castor oil and oil of turpentine, injected. Immediately after the instrument was withdrawn, she went to stool, and discharged a considerable quantity of solid and partly indurated feces. From this moment she recovered apace, and is now perfectly well.

I am indebted to Doctor Robert Moore Peile, Deputy Inspector General to the Forces in Ireland, and Senior Surgeon to the Richmond Surgical Hospital, for the following case.

“ Mr. L., an elderly gentleman, but previously of remarkably healthy constitution, was attacked on the 4th December, 1831, with the ordinary symptoms of obstruction of the bowels, with fast approaching, if not already established, enteric inflammation. Twenty ounces of blood were immediately taken from his arm, a calomel bolus, followed by a castor oil draught, was given, and a purgative enema administered. Finding, in the course of a few hours, that the bowels had not been moved, the bolus, draught, and enema were repeated, but without producing the desired effect. Between 5 and 6 o'clock in the afternoon, the abdomen became very swollen, tympanitic, and painful, the vomiting more frequent, the pulse 110, full and strong, the face greatly flushed; and he was observed to labour under a degree of stupor. He was now ordered boluses of calomel, draughts of castor oil and oil of turpentine, and of infusion of roses, sulphate of magnesia, and dilute sulphuric acid; and the enemata were directed to be repeatedly given. At 7 o'clock, all the symptoms were considerably aggravated, and the prognosis was very unfavourable. Under these circumstances, I requested Mr. Harrison, the apothecary in attendance, to introduce the tube of a stomach pump high up the rectum, and to throw up a large quantity of the common enema, with oil of turpentine. At my next visit, this intelligent gentleman informed me, that on passing up the tube, detached from the syringe, to

the height directed, he noticed the escape of a considerable quantity of flatus, that after throwing up about a quart of the enema, it was returned charged with fecal matter, and that the patient felt immediate and general relief. The situation of Mr. L. was now, indeed, greatly altered for the better, but as there was still some pain and tension of his abdomen, the tube was directed to be introduced, and an enema to be thrown up twice or thrice a day until the 9th, when he was considered to be in a safe state ; and in the course of a few days he was perfectly recovered."

The following case is communicated by Mr. Samuel Handy Halahan, of York-street.

" Mrs. S., aged 60, weakly, leucophlegmatic, and subject for years to reducible umbilical hernia, was seized, after being constipated for several days, with vomiting, and pain of the abdomen increased by pressure, particularly in the umbilical region, but the hernial tumour continued to be perfectly reducible and free from pain ; and the pulse, although quick, was very feeble. In this state she was seen by an eminent apothecary, Mr. Harrison, who prescribed calomel and opium, saline purgatives, and active enemata, which last were administered by a nurse, and in the common way. These means failing either to abate the general symptoms or to produce any discharge from the bowels, I was requested to visit her on the second day from the attack. She was then in such a state of debility, that I was afraid even to

venture on local bleeding, and merely directed that, in addition to continuing the former treatment, the abdomen should be stuped with a strong infusion of tobacco, a plant which is known to have the property of supplying the place of the lancet without its disadvantages. Towards evening, no evacuation having taken place from the bowels, although the tobacco stupe gave such relief that the patient requested to have it continued, I decided on passing the gum elastic tube up the rectum, and throwing up purgative enemata. In doing so, the recto-vaginal septum was found destroyed to such an extent, as left a free communication between the vagina and rectum; but after the tube was directed into the proper tract of the intestine, the difficulty of passing it high up was not very great, and on this being effected twenty ounces of the common enema were injected. In a few minutes, she passed a solid stool, and felt greatly relieved. She was now directed to have the instrument passed, and a similar enema thrown up every third hour. By these means, the bowels were completely evacuated, all vomiting and pain quickly ceased, and at the end of three days she was in her ordinary health."

The two next cases are communicated by Dr. William Hutchinson, Surgeon of the County of Leitrim Infirmary.

"Dr. A——y, between fifty and sixty years of age, has been frequently attacked with symp.

toms resembling enteritis, and these attacks usually occurred two or three times a-year, and always alarmed him much. I saw him in one of these attacks, for the first time, in the latter end of March last (1829). He complained of much pain in the lateral abdominal regions, and on pressure I could distinctly feel and hear flatus passing from side to side. He wished much for venesection, but being a very fat man, and apparently a difficult subject for blood-letting, I resolved on trying the effect of the tube of the stomach pump introduced as far as possible by the rectum. The tube was, without much difficulty, introduced to its full extent, viz., two feet, and about a gallon of gruel, with common salt, and four ounces of oleum ricini pumped through it. Immediately on withdrawing the instrument, he was obliged to go to the night chair, and there passed from him, along with the injection, an enormous quantity of hardened feces, such as I never recollect to have seen pass from any one patient. The relief was instantaneous, and I am quite convinced that medicine alone could not have restored the action of the bowels. In fact, I think that he must have inevitably fallen a victim to constipated bowels, (as many have,) but for the timely use of the pump."

"On the 15th of April, 1829, I was called to see James Beirne, æt. 28, labouring under such extremely severe pains of the abdomen that it would be difficult to adequately describe the

agonies he suffered. He had already taken a drachm of cathartic extract, and about a scruple of calomel. I thought the present a case for the use of the stomach tube. I accordingly sent off for it to Carrick-on-Shannon, a distance of ten miles. In the interim, he took, every quarter of an hour, a wine glassful of the following mixture:—

℞ Infus. Sennæ	℥viii.
Sulph. Magnesiae	℥ss.
Confection. Scammon.	℥vi.

m.

“ He had taken all this purgative medicine, without effect, two hours before the instrument arrived. When it did, I introduced the tube the whole length, and sent up a gallon of injection, which immediately returned unaltered. I began to fear permanent obstruction from a digital process, but, as a last resource, in an hour afterwards I introduced it again. The sigmoid flexure gave no resistance, but on pushing the instrument a little further, a rush of air came through it, followed by an enormous quantity of softened feces. The relief was instantaneous, and from the most suffering individual I had ever seen, he became in a moment perfectly tranquil.

“ I consider this application of the tube one of the greatest improvements in modern surgery, and many persons here can, if necessary, vouch for its great utility.”

Some of these cases will be recognised as ex-

amples of colic, others as examples of enteritis, and all of them are seen to exhibit the certainty and expedition with which the introduction of the tube has overcome not only the constipation, but all the other symptoms of these diseases. It is but natural, therefore, that such results should suggest important changes in the treatment of these diseases. In colic, it has been shown that the ileum, cæcum, and sigmoid flexure are generally distended with solid and fluid feces, and the intermediate portions of the colon with flatus. It occasionally happens, however, that the sigmoid flexure does not contain either solid or fluid matter, and that the whole of the colon is distended by air. Under such circumstances, to administer purgatives by the mouth, is only to increase the already irritable state of the stomach, to add to the distention and general suffering, and to attempt acting upon the seat of obstruction at the greatest possible distance from the same, and in the least practicable direction and manner. It is to be hoped, therefore, that practitioners will henceforth abandon this very injurious and unscientific mode of treatment; that they will direct their first efforts to the evacuation of the large intestines, and that they will then, and then only, have recourse to purgatives administered by the mouth. Precisely the same may be said of enteritis. But it is into the treatment of this disease, that I hope these cases may be the means of introducing the greatest improvement.

For example, if they shew that, the constipation which always attends, and often produces the disease, can be overcome, with certainty, safety, and expedition, by the plan in question, and that the act of evacuating the bowels either removes or greatly abates all the other symptoms, would it not be better and safer practice to reverse the usual order of proceeding, by freeing the bowels previous to the employment of either general or local bleeding? By doing so, I am persuaded, although I cannot speak from actual experience, that the expenditure of blood would often be greatly diminished, if not rendered wholly unnecessary. In fact, it is only necessary, to consider the indications with which copious blood-letting is employed in enteritis, in order to see that this persuasion is not quite unfounded. The first of these indications is to subdue inflammatory action; the second to produce a degree of debility sufficient to render the exhibition of purgatives safe, and to favour their operation. The introduction of the tube answers the latter indication much more certainly and quickly, and if it should fail to completely answer the former, it enables us to throw up a tobacco enema, and to diminish the action of the heart and arteries to any extent that may be required.

But another and an exceedingly important and interesting view of the subject here presents itself. It is this: if we see a person shortly after being attacked with symptoms to the assemblage of which

we give the name of enteritis, does it necessarily follow that inflammatory action must be going on, at that moment, in the intestinal canal, because blood drawn during this period presents the usual inflammatory appearances, or because, when he dies in a day or two or three days after, the intestines are found in an inflamed state? Certainly not, we cannot have ocular evidence of the fact being so, and these circumstances, although universally received as such, cannot, for the following reasons, be considered as positive proofs. In the first place, we know that a buffed and cupped appearance of the blood does not belong exclusively to the inflammatory state, and that it is an equally constant attendant on the irritative state of the system which prevails during pregnancy. In the next place, the fact that a very few hours are sufficient to effect the firm organization of lymph, and to establish even a high degree of inflammation, renders it unfair to conclude that the state in which the parts were found after death, had existed from the commencement of the attack, and that it is not the product of inflammatory action supervening a few hours before death. Lastly, the circumstance of all the symptoms disappearing so very quickly after the free evacuation of the bowels, and which forms so remarkable a feature of many of the cases detailed in this work, is one which must be considered perfectly inconsistent with what we know of inflammation

as it affects other parts of the body. Viewing the subject, therefore, in all its bearings, it really does appear to me, that the various symptoms which we designate by the name of enteritis, and are accustomed to consider as arising from inflammatory action, are very often but the effects of simple irritation arising from an over distended state of the intestinal canal, and that conversion from the irritative to the inflammatory state does not take place until an advanced period of the disease. If such be really the state of the facts, we should cease to be surprised at, or to be incredulous respecting the powerful effects of the tube in these and other cases; and we should now see an additional and a strong argument in favour of introducing the tube, before we have recourse to either general or local bleeding.

I am well aware that these opinions are diametrically opposite to those universally received and acted upon, particularly to those of Doctor Abercrombie, one of the latest and best writers on the subject of intestinal inflammation. I am fully prepared to see them treated as mere visionary speculations by those who have never witnessed the effects of the tube in such cases, and who either disbelieve or have no confidence in tobacco as a substitute for the lancet. I can readily conceive also that the very idea of passing an instrument into an inflamed intestine, will be sufficient to excite a kind of pious horror in the

minds of those who habitually declare against all innovation, and who will not reflect that, in such cases, the inflammatory action is generally confined to the serous, and, as Dr. Abercrombie considers, the muscular coats of the intestine, and consequently that the instrument is not applied to an inflamed but a healthy surface. I cannot, however, bring myself to reject the evidence of my own senses, or to suppose that the scientific cultivator of medicine will reject legitimate deductions from facts carefully observed, merely because these deductions happen to conflict with the opinions and practice of ages.

PUERPERAL FEVER.

The following case is from the late Mr. Richard Gregory, Master of the Coombe Lying-in-Hospital.

“ Johanna Barnard, aged 25, was carried to the Coombe Lying-in Hospital, on the 5th of March, 1828, labouring under such severe pains in the groins, and all over the abdomen, especially about the umbilical and hypogastric regions, as to be unable to bear the slightest pressure. Pulse small and difficult to be felt; countenance extremely anxious; great prostration of strength; bowels confined, great thirst, &c. States herself to have miscarried, a few days before, in the fourth month of pregnancy, and says that she was previously strong and healthy. Twenty

ounces of blood taken immediately from the arm; an enema of turpentine; abdomen to be constantly fomented; three grains of calomel and a quarter of a grain of opium to be given every hour; enema to be repeated in three hours, and if no stool takes place, to have a castor oil and turpentine draught.

“6th. Feels somewhat easier. Has had no stool. Pills, enema, and draughts to be continued.

“7th. Passed a restless night, had one or two scanty motions; mouth sore, and in great pain; passed the œsophagus tube nearly its whole length up the anus, and through it injected five or six pints of warm water, some oil, and about a wine glassful of turpentine. In a few minutes after withdrawing the tube, an enormous quantity of feces came away, giving immediate and decided relief.

“14th. Discharged perfectly well.”

The following cases and observations are by Mr. C. J. O'Hara, Resident Accoucheur to the Coombe Lying-in Hospital.

“Eliza Gallagher, aged 34, delivered in the Coombe Lying-in Hospital, on the 12th of October, 1830; character of labour natural, was seized on the 14th with pain in the uterine region, which soon extended to her back and down her thighs. Says the pain returns every half hour with increased suffering.

15th, 9 o'clock, A. M. Thinks the pain some-

what less severe since morning, but the least attempt to move in bed produces a return of it. She now lies on her back with the knees drawn up, and any attempt to extend her legs causes intense pain ; cannot bear the slightest pressure on the abdomen ; pulse 130 ; headach ; skin hot and dry ; no sickness of stomach ; breasts secreting ; lochia suppressed ; venesection ad ℥xx ; calomel gr. v, jalap ℥i ; and the black draught, if necessary ; stupes sprinkled with spirits of turpentine to be frequently applied over the abdomen. Ten o'clock, P. M., pain still severe ; bowels not acted on by the medicine ; threw up about four or five pints of water and oil by means of the œsophagus tube ; to take calomel gr. v., opii gr. $\frac{1}{4}$, every hour ; stupes to be continued.

“ 16th. Bowels well freed shortly after the enema ; rested during the night, and now feels free from pain. This woman was discharged cured on the 19th.”

“ Mary Kelly, delivered 2d of February, 1831, attacked, four days after delivery, with violent pain over the abdomen, and passing from her back to her groins. Cannot bear the least pressure on the abdomen ; milk and lochia suppressed ; pulse 100, hard and wiry. Bled to ℥xx ; calomel gr. x., opii gr. i. ; afterwards oleum ricini cum spirit. terebinth. ; threw up an injection by the tube ; stupes over the abdomen ; bowels copiously freed immediately after the injection. Convalescent on the following day.”

“Several women in the same ward were attacked shortly after Kelly, and so violent were their sufferings, that their screams could be heard through the entire hospital; but by adopting similar treatment, they were nearly convalescent by the following day.”

“I was called, on Sunday morning the 18th of December, 1830, by the house pupil on duty, to visit Mary Collyer, an extern patient of the hospital, living in New-street, and who was delivered of her first child on the preceding Thursday, after a labour of fourteen hours. She was seized, at about two o'clock that morning, with shivering, followed by sickness of stomach, and violent pains over the entire abdomen, and darting from her breast to her groins; pains so severe as to cause her to scream out. On visiting her, I found her countenance anxious, the pulse 100, small and hard, the skin hot, the tongue brown and dry, the breasts, which had been distended, flaccid, the lochia suppressed; and that she could not extend her limbs, which were drawn up. Bled to $\bar{z}$ xxx., calomel gr. x., opii gr. iss. statim; injection by the tube; stupes repeatedly. Three o'clock, P.M., bowels freed about an hour after the injection, passed large quantities of scybala, and now feels free from pain. Oleum ricini c., terebinth. stupes continued.

“20th. Convalescent.”

“On inquiring into this case, I was informed that, the evening previous to the attack, she had

partaken freely of bacon, followed by some burnt whiskey. In short, these attacks are much more frequent among the extern than the intern patients, and are generally produced by irregularities in diet, but principally in drinking, notwithstanding the repeated injunctions to the contrary, which they receive from the gentlemen in attendance."

"These are but a few out of many cases I have seen illustrative of the efficacy of the tube in those affections to which puerperal women are so subject, and from the many opportunities I have had during a long residence in a lying-in hospital, the entire charge of which always devolved on me in the absence of the Master, I cannot speak in too high terms of its great value and efficacy."

The opinions held respecting the pathology and treatment of puerperal fever, are so very unsettled and contradictory, and the disease has so often proved fatal under the most approved modes of treatment, that the facts stated in the foregoing cases can scarcely fail to excite deep interest. The subject, however, is the one of all others with which I have had the least practical acquaintance; but, from what I know of its literature, I am strongly disposed to believe that the tube will be found a powerful auxiliary to the lancet in diminishing the fatality of the disease. How far these cases are calculated to elucidate the real nature of

the malady, or how far they admit of similar observations to those which I have made on enteritis, are points which must remain to be decided by some person better qualified to undertake their consideration.

DYSENTERY.

In no instance perhaps are the disadvantages and injurious influence of false physiology more strikingly displayed, than in the views now held respecting dysentery. Indeed, I am not only prepared to show that the pathology and treatment of this disease are in such a defective state, that they require to be entirely re-cast, but also to undertake the task of placing these great divisions of the subject in a more correct and natural light. The task is at once a difficult and an ambitious one, and it is not for me to determine how far I shall succeed in executing it, but I claim the privilege of approaching and treating the subject in my own way. I shall commence, therefore, by briefly reviewing the opinions and investigations of both ancients and moderns respecting the seat and nature of the disease.

Hippocrates,* Aretæus,† Galen,‡ Cælius Aure-

* Aphor. 43 et 46, lib. vi.—De Diæta. lib. iii.

† De Causis et Signis, &c. p. 78 et seqq. Oxoniæ, 1723.

‡ De Locis Affectis, lib. vi.—Ad. Aphor. iii., lib. vi.

lianus,* Celsus,† Alexander Tralles or Trallian,‡ and their successors for many centuries, considered dysentery to consist in ulceration of the intestines generally, and without, in any manner, leaving it to be understood that they limited its seat to the large intestines. Indeed, both Aretæus and Cælius Aurelianus expressly state the small, as well as the large, to be so affected; and the latter actually names the duodenum, jejunum, cæcum, colon, and rectum, omitting, unaccountably enough, the ileum, as the parts of the intestinal tube in which ulceration may be found. Sydenham and Willis evidently entertained the same opinions, but appear to have been the first to perceive that inflammation of the mucous membrane of the intestines, whether followed or not by ulceration, was essential to the existence of the disease. Much about the time of Sydenham, Panaroli, a Roman physician, asserted that, in the dissection of a great number of dysenteric subjects, he had never found blood in the small, but always in the large intestines; that the disease must cause ulceration in the latter, and cannot produce it in the former situation; and he endeavoured to explain why this should be the case, on a principle so just, and so similar to one advocated fourteen years

* De Morbis Acutis et Chronicis, lib. iv. cap. vi. Morb. Chronic.

† De Medicina, lib. iv. cap. xv.

‡ De Singularum Corporis partium, &c. lib. iii. cap. xx. Basileæ.

ago in my inaugural dissertation,* and which, until very recently, I considered myself original in observing, that it will only be doing strict justice to this neglected author, to quote his own words, particularly as it is my intention to avail myself of some of his ideas. The following are his words:—"In sectione quamplurimorum dysentericorum sanguis in intestinis tantum crassis observatus fuit, non in tenuibus. Ratio est quod humor corrodens in superioribus intestinis facillime fluit, unde non potest fieri excoriatio et corrosio, ut accidit in crassis, præcipueque in colo, ubi ob anfractus et concamerationes maximopere stagnans, morbificus humor supra modum corrodit tunicas, unde mucus et sanguis effluit. Ideo clysteres abstergentes, aquasque thermales optimas existimarem, sicut optimas inveni, habita tamen causæ morbificæ ratione."† Even this author, it will be perceived, considered the blood which he found in the large intestines to have proceeded from the small, and consequently that the latter were affected. It will be found also that neither Bonetus, Morgagni, nor any of the numerous authors quoted by them, limit the seat of the disease to the large intestines; but, on the contrary, that they relate many cases in which the lining membrane of the small intestines exhibited various

* De Contagione, Theoria et Curatione Dysenteriae, p. 11, et seqq. Edinburgi, 1818.

† Iatrologismorum, seu, Medicinalium Observationum Pentecostæ quinque. Pentecost. 1, Observ. 9, Romæ 1652.

degress of inflammation and ulceration. From the time of Morgagni to the present period, numerous post mortem examinations of dysenteric subjects have been made, but, as might be expected, by far the greatest number of these have been made in cases of long standing, and exceedingly few in cases where the disease proved fatal at an early period from the attack. Within the last few years, however, this great defect has been completely removed by that excellent pathologist, Dr. John Cheyne, who relates the symptoms and post-mortem appearances in thirty cases; in several of which it will be seen that the disease terminated fatally at periods unusually early, and varying from four to twenty-one days and upwards, from the date of its attack.* Among these cases, the 4th, 12th, and 19th, exhibit a fact which appears to have been overlooked, and which cannot be explained by any of the pathological views of the disease that have as yet been offered. It is this; that at the same time that the lining membrane of the cæcum and colon is extensively and deeply ulcerated, that of the rectum may be found quite free from, or but partially and slightly affected with either inflammation or ulceration. Viewed as a whole, however, but not including those cases in which inflammation has been found to have extended itself to the peritoneal coat, or the various degrees in which the mucous membrane has been found disorganized, the results of the numerous post-mortem

* Dublin Hospital Reports, vol. 3.

inspections which have been made in modern times, will be found to range themselves under the following different heads, and in the following order, as regards their respective degrees of frequency.

1st. Cases in which appearances of inflammation or its sequelæ were confined to the internal surface of the cæcum, colon, rectum, and a small portion of the termination of the ileum.

2d. Cases in which these appearances were confined to the internal surface of the cæcum, colon, and a small portion of the termination of the ileum.

3d. Cases in which these appearances were confined to the internal surface of the cæcum and colon.

4th. Cases in which the internal surface of the digestive tube, from the cardiac orifice of the stomach to the anus, exhibited these appearances.

Even from this cursory view of the opinions and investigations of both ancients and moderns, it will be seen that the results are quite conclusive as to dysentery being of an inflammatory nature, and its seat being in the mucous membrane of the intestinal canal. But it will also be perceived that these results are directly opposed to the opinion now very generally held,—namely, that the primitive seat of the disease is in the mucous membrane of the large intestines, particularly that of the colon. It is difficult to determine the exact time or source to which the introduction of this opinion is to be referred. It seems to be altogether of modern origin, and to have gradually

gained ground until, at length, its correctness has appeared to be so fully established, that a late French writer has actually discarded the ancient name of the disease, and described it under that of "colite," or "colitis."* It is evidently founded on the fact of the colon being always found diseased, and often with little or no affection of either the rectum or the small intestines, and consequently on a very erroneous and partial view of all the facts. But, besides being exposed to this valid and, indeed, insuperable objection, it will not be difficult to show that the doctrine is totally inconsistent with the only rational pathology of the disease that has ever been offered, and that the insulated fact upon which it is founded, can be so explained as to lose all its apparent weight. That it is totally inconsistent with the only rational pathology of the disease that we possess, is easily proved. For example, if one of the first morbid actions which produce the disease, consists, as there is every reason to believe, in the determination of blood from the surface of the body to the abdominal organs, particularly the liver, stomach, and intestines, how can the seat of the disease be said to be confined to the mucous surface of the large intestines? Such an idea is not only quite incompatible with the theory, but also with the facts, first, that the small intestines are supplied with a much greater number of arteries and veins, and in every respect more highly organized, than

* See Dictionnaire de Médecine et de Chirurgie Pratiques, art. "Colite."

the large ; secondly, that there is the utmost freedom of anastomosis between all the arteries, and an absence of valves in all the veins, of both the small and the large intestines. These facts, on the contrary, render it highly probable, that a much greater quantity of the blood so diverted from the surface, is directed to the former than to the latter portion of the intestinal canal. Again, if it be true that, at any period of the disease, a vitiated and highly irritating description of bile is secreted, is it natural or reasonable to suppose, that such a fluid can pass through the long tract of the small intestines, at a time when their lining membrane is either in an irritative or an inflamed state, without exciting inflammation of this membrane, if it did not previously exist, or without exasperating it, if it did? Such a supposition is repugnant to common sense. But I have now to turn to the fact upon which the doctrine in question is mainly founded, and to show that it is altogether illusory, and does not support the inference to which it has given rise. This, however, will be satisfactorily accomplished in the course of the following outline of what appears to me to be the true pathology of the disease. In executing this task, it will be perceived that I proceed upon the principle that primarily the mucous membrane of the liver, that of the whole of the intestinal canal, and, perhaps, also that of the stomach, are the seat of the disease, and that the nature of the disease is, first, of a congestive ; secondly, of an irritative ; and thirdly,

of an inflammatory character. It will also be perceived, that I have freely availed myself of the enlightened views put forth on the subject by my distinguished countryman, Dr. James Johnson ; but it cannot escape observation, that I have added many very important facts, and placed the whole subject in a light very different from that in which it has been viewed by him, or by any other author. My view of it is as follows.

When, as frequently occurs in autumn and the latter end of summer, a person becomes first heated, and then exposed to cold, or, which is still more frequent and influential, to cold and moisture combined, the temperature of the surface of the body is considerably cooled down, the flow of blood to, and the secretion from this surface are checked, and the consequence is, that an unusual quantity of blood is determined to the interior of the body. But this blood is not determined to any other tissue than the mucous, because, as it would appear, this tissue is but a modified continuation of, and, of all others, the most closely allied, in structure, function, and sympathy, to the skin, for which the reflux blood was originally destined. Again, this blood is not determined to the mucous membranes of the mouth, nose, fauces, pharynx, lungs, or genito-urinary organs, but to those of the liver, stomach, and small and large intestines, which are obviously infinitely more exposed to, and perhaps at the time actually labouring under, derangements which render them less capable of resisting, and more

prone to receiving the tide of blood thus diverted from its natural direction. This is the congestive stage, and it marks the rigor, paleness, inappetency, eructation, and nausea, with which the attack generally commences. The presence of such an unusual quantity of blood in these organs, destroys the equilibrium which previously existed between their vascular and nervous systems, and eventually the latter becomes excited proportionally with the former. This is the irritative stage, which so shortly precedes the inflammatory, and is only marked perhaps by the irregular and wandering pains complained of before those termed "tormina" set in. During both these stages, there is, most likely, little or no effusion of blood, and the hepatic and intestinal secretions are arrested; but the third stage is quickly developed, and the whole of the mucous membrane of the digestive canal, from the pyloric, if not from the cardiac, orifice of the stomach to the anus, as well as that continuation of it which lines the biliary and pancreatic ducts to their minutest and most remote ramifications, are attacked with inflammation, and become highly and morbidly sensible. From this extensive surface blood is now copiously effused, and the hepatic, intestinal, and perhaps pancreatic, secretions become increased in quantity, and highly vitiated and irritating in quality. These secretions, as well as the morbid state by which they were produced, rouse the muscular parietes of the small intestines into activity, and cause them to hurry forwards their multifarious

contents,—namely, alimentary matter, blood, air, and vitiated hepatic and intestinal secretions, towards the large intestines; but in their passage through the small, they necessarily create great tormina and suffering, for the containing parts and their contents no longer bear to each other the same inoffensive relation as in health, the former being much more sensible of irritation, and the latter much more irritating. But when the contents pass through the ileo-cæcal valve, and enter the large intestines, they there become very differently circumstanced, and in a manner which requires to be distinctly and clearly explained, before it is possible to exhibit or to arrive at any thing like correct views of either the pathology or treatment of the disease. The following, however, appears to be a tolerably accurate exposition of this very important and interesting part of the subject.

At the time of the attack of the disease, the rectum is, as it always is, except for a few minutes before stool, firmly and imperviously contracted; but during the irritative and inflammatory stages, it becomes, according to the principle already laid down, still more powerfully contracted; and the consequence is, that, with the exception of a very small quantity of flatus, blood, and mucous, which occasionally escapes per anum, there is complete retention of the alvine contents. In fact, as far as retention of both solid and fluid feces, the bowels may be said to be as completely constipated at the early period of the disease, as they are in

enteritis, for the discharges from them are then very rarely seen even tinged with fecal matter. Again, at no period of the disease is there any evidence whatever of the ileo-cæcal valve performing its office imperfectly, for if it were even true that the action of this valve may be inverted, it is certain that stercoraceous vomiting, the supposed test of the occurrence, has never yet been observed in dysentery. Such being the state of the facts, it follows that the contents are admitted to pass freely through the ileo-cæcal valve,—that their exit per anum is prevented by the rectum,—that their return into the small intestines is prevented by the ileo-cæcal valve, and, consequently, that once they have entered, they are forced to remain pent up within the cæcum and colon; and that the combined effect of the peculiar structure and functions of the valve and rectum, is such as to subject these portions of the large intestines to the operation of a principle of accumulation, which is always more or less in activity. These facts have been already noticed, and are equally applicable to various other diseases, but I have considered it necessary to repeat them here, and to put them in a still more impressive shape, in order to produce as strong a conviction as possible on the subject under consideration.

Having given this explanation, I have now to revert to the early part of the inflammatory stage, in which the alimentary matter, blood, air, and vitiated secretions, have been described as being hurried on towards the ileo-cæcal valve. When

all these matters enter the valve, which appears to freely admit them, they become applied to the lining membrane of the cæcum, and soon after to that of the whole of the colon; and, from having free ingress, but neither egress nor regress, become pent up and accumulated within these intestines, and subject their lining membrane, which, be it recollected, is already in an inflamed state, to a high degree of both mechanical and chemical irritation, and in fact, to an irritation which increases in intensity with every accession of matter from the superior division of the canal. In this way, the irritation and distension quickly become such as to rouse the abdominal muscles to frequent and violent expulsive efforts; but these efforts almost invariably fail, at an early period of the disease, in forcing open the upper annulus or entrance of the rectum, because this part of the intestine, by being directly exposed to the operation of the same cause by which the abdominal muscles are excited, is stimulated to oppose a degree of resistance proportioned to that of the force exerted by these muscles. Here, however, it may be objected that the fact of bloody and mucous discharges being co-existent with the inflammatory stage, is evidence of the expulsive efforts making, at least, a partial impression upon the superior annulus or entrance of the rectum; but as the lining membrane of this intestine is, at the time, in an equally inflamed state, and, consequently, as the blood and mucous discharged may be furnished from this, and not from a higher

source, the objection almost ceases to be one. Indeed, it would be much better sustained, if it could be shown that flatus was discharged at this early period of the disease; but as far as my experience of the disease goes, and it has been ample, the discharge of flatus per anum is an occurrence which is not observed for many hours or even for some days after the appearance of mucous and bloody stools. But to proceed. The inflamed lining membrane of the cæcum and colon, in consequence of being so singularly circumstanced, necessarily advances to ulceration; and it is obvious that this membrane will become much more deeply and extensively ulcerated in those situations in which the contents have been shown to become lodged, or to meet with the greatest obstruction in passing. Accordingly, pathological anatomy shows that the cæcum, and the transverse arch and sigmoid flexure of the colon are the situations in which the most numerous and the deepest ulcers are found. But if matters were to continue thus for any length of time, it is manifest that the ulcerative process would quickly destroy the muscular coat, extend to the sub-serous and serous tissues, and cause death by enteritis. In point of fact, such a conversion is far from being an uncommon termination of dysentery. Nature, however, generally makes an effort in which she succeeds in arresting the activity of this process, and causing the disease to assume a more chronic form; and the means by which she proceeds to effect these ob-

jects appear to be of a twofold description. In the first place, it will be shown hereafter that, as the disease advances, a recuperative power is bestowed upon the small intestines; that these intestines, together with the liver, no longer pour out secretions of the same vitiated and irritating quality, or in the same quantity; and that thus one great source of irritation and distension is removed. In the next place, the inflammatory action going on in the sigmoid flexure of the colon, soon extends itself, first, to the mucous, subsequently, to the muscular structure of the upper annulus or orifice of the rectum; and, by thus weakening the resistance previously made by this part to the expulsive efforts, enables a quantity of flatus, blood, mucus, and occasionally fluid feces, to escape, from time to time, per anum. Here is a still more effectual arrangement than the former for relieving the oppressed condition, and checking the rapidity of ulceration, of the cæcum and colon. From the upper annulus of the rectum the disorganizing process soon extends along the inferior portion of this bowel; solid and fluid feces, but exceedingly rarely what are called scybala, are found more frequently, in greater quantity, and with an admixture of purulent matter in the discharges by stool; and the disease may now be said to have assumed the chronic form.

But what is the situation in which the small intestines are placed, throughout the course of the disease? It exhibits a striking contrast to

that in which the inferior division of the canal has just been shown to be placed, and is this. From the moment that the inflammatory stage is fairly established, the perpetually excited action of their muscular coat relieves the small intestines from the presence of blood and vitiated secretions, almost as soon as these fluids are effused into their cavity. Consequently, these intestines are but momentarily exposed to either mechanical or chemical irritation, and, by means of the copious effusions of blood which take place from every point of their long tract of mucous surface, are placed in a situation, of all others, the most favourable and conducive to the recovery of their healthy condition. But as it frequently happens that the contents cannot, from an over-distended state of the cæcum and colon, pass through the ileo-cæcal valve, they must often become detained in the lower part of the ileum, and there produce distension and irritation.—Hence it is that this portion of the small intestines is oftener found in an inflamed or ulcerated state than any other. It is manifest, also, that the longer the valve opposes the entrance of the contents, the higher up will inflammation or ulceration be found in the small intestines.

Lastly, it is necessary to view more particularly than I have as yet viewed it, the manner in which the mucous membrane of the rectum is situated and affected, during the course of the disease. In the early stage, it is attacked with inflammation, simultaneously with that of the

whole of the superior portion of the canal, and copiously pours out blood and a vitiated mucous secretion; but the great muscular power of this intestine enables it to free itself from the presence of these fluids, and to discharge them per anum. It is gradually freed, also, from inflammation and its consequences, by the discharges of blood which take place from the whole of its surface. In this stage of the disease, therefore, the rectum, like the small intestines, is also placed in a situation favourable to its regaining a healthy state. But when, as I have already shown, the disease advances towards a chronic form, and ulceration extends to the upper annulus of the rectum, the whole of this intestine soon becomes similarly affected, and, in very chronic cases, it is generally found in the highest state of disorganization.

Such are my views of the pathology of dysentery. They are founded, first, upon the general principles which I have endeavoured to establish, respecting the peculiar structure and functions of the intestinal canal; secondly, upon the application of these general principles to the symptoms and post-mortem appearances, as I observed them during several campaigns in the Peninsula, France, and the Netherlands, and, subsequently, during thirteen years of experience as an hospital surgeon and a practitioner in this city. As such they may perhaps be respected and adopted by many, but I rather imagine that their strongest

recommendation will be the simple and ready manner in which they satisfactorily explain every fact now known respecting the disease.*

If, then, the state of the cæcum and colon be such as I have just described it to be in dysentery, the inference is direct, and of great practical importance—namely, that the chief curative indication should be to pass up the gum elastic tube and introduce it into the sigmoid flexure, in order to give exit to the accumulated and pent up contents of the cæcum and colon. To this proposal

* Baillie, in his “Morbidity Anatomy,” says that “ulceration does not appear to be so common in the small as in the great intestines.” (P. 166, Edit. 5. Lond. 1818.) Again, after noticing the rarity of ulcers in the inner membrane of the trachea and urethra, as compared with their frequency in the inner membrane of the intestines, he expresses himself thus: “It is difficult to assign a satisfactory reason for this difference. It probably, however, depends upon the different structures and functions of these parts. There is a good deal of resemblance between the structure of the inner membrane of the trachea and urethra. The secretion of the one, likewise, is not very different from that of the other. The inner membrane of the intestines has a structure and secretion peculiar to itself. It is probable that upon these circumstances depends its greater disposition; but it is very difficult to explain how this should be the case.” (P. 169, 170.) Here is one of the highest authorities on the subject, admitting the difficulty of explaining morbid appearances, the causes of which will now be quite obvious. Upon such principles as the above, may also be explained an occurrence noticed by Andral, (*Anatomie Pathologique*, p. 91 et seqq. *Clinique Médicale*, t. 3, p. 483 et seqq.); namely, that, after inspecting the bodies of a number of persons who died of continued fever, he found that the duodenum and rectum were the situations in which ulcers were most rarely met with.

the only objection that can possibly be urged, is the inflamed state of the lining membrane of the rectum ; but to be fully sensible of the weakness of this objection, we have only to consider how slight and momentary must be the irritation or injury inflicted, in such a case, by the careful introduction of a flexible, polished, and well oiled instrument, and then to contrast this trifling disadvantage with the vast importance of at once relieving the patient from acute suffering, and arresting the destructive progress of the disease. Besides, this would, in point of fact, be but one of many instances of an important end in view compelling us to treat mucous membranes with great freedom. In cases of urinary calculi, for example, the surgeon will not hesitate to sound a patient labouring under catarrh of the bladder ; and if he cannot moderate the catarrhal symptoms, he will not be deterred from cutting into the bladder and extracting the calculus, for he knows that the inflamed state of the lining membrane of that organ has been produced, and is kept up by the presence of the calculus within its cavity, and that, if he does not pursue this bold and decisive course, the consequences must be, in the first instance, extensive ulceration, and ultimately a miserable and lingering death. These practical facts and principles bear such a peculiarly direct and forcible application to the circumstances under which the cæcum and colon are placed in dysentery, that they must be considered as going very far,

indeed, to establish the imperative necessity of relieving these intestines in the way proposed. But why, it may be asked, have I thus raised and anticipated a question which is so easily confuted? Simply, because, from the influence which it has had over my own mind, it would seem to be specious enough to prejudice and mislead the minds of many of my readers; for it is a fact, that until within a few months, and until I had actually collected and arranged all the facts relating to the subject, I could not be induced to venture on the introduction of the tube in a case of dysentery. Indeed, it unfortunately happens, that, from this cause, as well as from the disappearance of dysentery and of almost every other epidemic disease, during the nine months that malignant cholera has been prevalent in this city, I am now unable to produce more than one solitary instance of the success of the mode of treatment in question. This circumstance, it must be admitted, is very unfavourable to my peculiar views, but from the decided effect of the practice in that one case, I entertain no fear whatever of its ultimate success, and shall seize the first opportunity of giving it a more ample trial, and reporting the results, whether favourable or otherwise. The following is the case to which I allude.

On the evening of the 11th of April last, Miss Rosetta F., an infant nine months old, was given, while teething severely, two grains of calomel, which produced, during the night, severe vomit-

ing, purging, and, as would appear from her cries, considerable griping and pain. The following day, and while she still had more or less of purging, the nurse imprudently carried her about in the open air, and without sufficient covering. On that night she began to pass blood and mucus per anum, unmixed with a particle of fecal matter; she moaned continually, and threw up the breast-milk, nearly as soon as she took it. To remove these symptoms, she was placed in a warm bath, had the abdomen stuped with warm water and spirits, and was given internally mint tea and castor oil, which she likewise rejected by vomiting. Various domestic injections were also administered to her by a bag and pipe, but were invariably returned unchanged, and without producing any feculent discharge; and it was observed that she passed no urine for twenty-four hours. In this state, but the general symptoms becoming daily more aggravated, she continued until Sunday the 15th, when the family feared she was dying, and I was requested to see her. Her countenance was then exceedingly pale, her feet and hands, although enveloped in warm flannel, were very cold, and she lay, evidently from great weakness, quite motionless in the nurse's lap, with her eyelids half closed, and seemingly regardless of the persons and objects about her. Her pulse was very quick and feeble, she was passing, every ten minutes, quantities of blood and mucus, untinged with fecal matter, from her bowels, and

her abdomen was hard and distended. My first care was to divide the gums by a deep crucial incision made at all those points where teeth were making their way ; but perceiving that she was in no degree relieved by the operation, and seeing the imminent danger in which the infant was placed, I resolved on introducing the tube. Accordingly, no time was lost in doing so, and, although it was but a size smaller than the stomach tube, no unusual difficulty was encountered in passing it, and the infant did not cry much, or seem to feel any great pain. As soon as the instrument entered the sigmoid flexure, a burst of flatus, followed by fluid feces, blood and mucus, escaped through it, and on these ceasing to come away, an injection, composed of half a pint of warm water and half an ounce of castor oil, was thrown up. The tube was then withdrawn, and immediately followed by a very considerable quantity of solid and fluid feces, mixed with blood and mucus. In less than an hour, the infant became generally warm, very lively, took the breast with avidity, and without vomiting up the milk as before ; and her pulse, although still quick, became much fuller and stronger. She was now directed to have a tea-spoonful of electuary of sulphur every fourth hour, to get a little weak chicken broth from time to time, and to have the belly frequently stiped with an infusion of half an ounce of leaf tobacco in two or three quarts of boiling water, which was to be used as soon as it had sufficiently cooled down. During that day,

she had two or three stools, from which blood and mucus gradually disappeared, and she slept naturally during the night. The following morning, she was so well as to require no further treatment, and she is now a healthy, strong child.

Such are the principles upon which this novel mode of treating dysentery is founded, and such the striking features of the case upon which I venture to confidently predict that the practice will yet be found preeminently successful.

So far, however, from being meant to exclude the aid of other remedial means, the proposed plan is peculiarly calculated to insure the success of these means, and to regulate their selection and use. One of the first advantages that I contemplate as likely to arise from it, is its rendering blood-letting unnecessary, except perhaps in extreme cases, where the patient is very plethoric and the disease exceedingly acute or about to pass into enteritis. This expectation will, no doubt, appear to be very unreasonable, but the grounds upon which it is formed are the following, and they will be found neither weak nor insufficient.

In the first place, the introduction of the tube, by completely emptying and relieving the cæcum and colon, removes the cause by which fever, inflammation, and general suffering are kept up, and places the mucous membrane of these intestines in a situation the most favourable to recovery by sanguineous effusions from its whole surface. Secondly, it can be satisfactorily esta-

blished that tobacco, besides producing all the effects, is free from the serious disadvantages of copious blood-letting, and far excels it in the power of giving immediate and decided relief to those very distressing symptoms, tormina and tenesmus. Nearly nine years have elapsed since the publication of my paper "on the use and advantages of tobacco in the treatment of dysentery," and I can conscientiously and safely assert that, during that time, I have employed the practice there laid down in a great number of cases of the disease; that I have never found it necessary to employ the lancet in any one of these instances; and that I cannot recollect a single instance in which I have lost a patient labouring under the acute form of the disease. During this period, also, the practice has been extended by myself and others, with the greatest advantage, to the treatment of inflammation of the mucous membranes of the genito-urinary organs; I have found it a most useful adjuvant in the treatment of colic, enteritis, and other affections of the bowels; and I have often employed it with success, in cases where, from the degree of debility which existed, general bleeding, although indicated, would have proved more fatal than the disease itself. In short, time has but served to establish the practice, and confirm all the statements made in my paper on this subject. But as the reader may not have read this paper, and may not be acquainted with the mode of employing the plant, or with its peculiarly felicitous manner of acting,

it is necessary to inform him upon these points. The mode of employing it, in the case of an adult, consists in stuping the abdomen with an infusion made by throwing a quarter of a pound of leaf tobacco into four or five quarts of boiling water ; in continuing to stupe unremittingly, until the specific effects of the plant, particularly prostration of strength, are produced ; and in administering, in the mean time, a dose of castor oil or of some other mild purgative, every third hour, until the feculent contents of the bowels are discharged. When this takes place, the stuping must still be persevered in, but the interval between the exhibition of each dose of purgative medicine should be much longer. The patient's diet is, of course, to be of the lightest description. By steadily pursuing this plan, I have generally found that every vestige of the disease disappears in the course of four or five days, and that, in less than twenty-four hours after ceasing to employ either the tobacco stupe or purgatives, the depressing effects of the plant completely go off, and leave the patient in perfect health, and undiminished strength and vigour. As to the manner in which tobacco acts, and its capability of fulfilling the different curative indications, it is not in my power to state its superior claims more fully or accurately than they are stated in the following passage extracted from my paper on the subject :—“ On reviewing the foregoing cases, (seven in number) certain of the effects of tobacco in dysentery, cannot have failed to fix attention :

its power of controlling the undue action of the heart and arteries, and of altering the character of the pulse ; the arrest it, as it were, placed on the flow of blood, and on the secretion of mucus from the tract of the digestive tube ;—the certainty with which it induced that degree of debility necessary to overcome spasm, and favour the unlocking of the bowels ;—the unerring relief it gave to those obstinate and distressing symptoms, the tormina and tenesmus ;—the removal of that apparent, not real, debility, which so strongly marks enteric inflammation, and of which paleness of the countenance forms so striking a feature ;—its rapidly restoring the skin, stomach, kidneys, to their healthy functions ;—lastly, its procuring sound sleep, the want of which is so constant a symptom in this disease, and which Rouppe, Pringle, and others, could not induce by opium and the strongest narcotics : these are prominent features of its full influence.” *

Reverting, then, to the expectation that general bleeding may be dispensed with, in the treatment of the disease, it is but reasonable to conclude, that as tobacco exhibits such anti-dysenteric powers as these, without the aid of the tube, it will exert these powers with far greater effect, after the loaded and oppressed state of the

* Transactions of the King and Queen’s College of Physicians in Ireland, vol. iv. p. 402.

cæcum and colon has been removed by the introduction of that instrument; and that, with the assistance of mild purgatives and proper diet, it will then prove fully adequate to the fulfilment of all the necessary curative indications, without having recourse to either general or local blood-letting. Indeed, the case which I have just related, is strongly in favour of this conclusion, and if the statements which I have made respecting the unassisted agency of tobacco in the disease, are worthy of the least credit, I cannot see any grounds upon which the correctness of the opinion can be impugned.

But it is not merely in the acute form of the disease, that the introduction of the tube promises to be attended with such great advantages. It is likely to prove equally advantageous in the chronic form, for it will enable us not only to empty the cæcum and colon, but also to act upon the ulcerated portions of these intestines, by throwing up such emollient, astringent, or sedative injections, as may be considered useful in promoting their cicatrization or assuaging their morbid sensibility.

Whatever may be, however, the form of the disease in which it is employed, the tube should be introduced whenever an exacerbation of symptoms indicates fresh accumulation. Even in the acute form, and when accumulation is not indicated, I can anticipate considerable benefit being derived from its occasional introduction, for the

purpose of throwing up warm water, or warm milk and water. But it is obviously in the chronic form, that its employment will be most frequently required.

Such are my views of the pathology and treatment of dysentery. They are calculated, it is true, to startle prejudices honestly entertained, and, perhaps, to raise up angry opposition; but, believing them to be correct, and that time and future trials will only serve to confirm them, and to give them currency, I do not hesitate to put them forth. In one respect, however, I feel that I have again exposed myself to a charge similar to one made against me, on a former occasion, under circumstances very analogous to the present, and which I shall now explain, and endeavour to rebut.

In the course of some observations on a case of traumatic tetanus successfully treated by tobacco, which I inserted in the third volume of the Dublin Hospital Reports, the decided manner in which the remedy controlled and ultimately subdued all the prominent symptoms of the disease, seemed to justify me in asserting its superiority as an antitetanic agent, and to anticipate its success in the same strong terms that a similar consideration, together with other substantial reasons, has just led me to use in anticipating the success likely to attend the introduction of the tube in dysentery. A learned reviewer, however, thought it necessary to check my favourable anticipations,

by asserting that “a single case can do no more than authorize further trials, without exciting any thing like sanguine hopes, or forming any basis for general conclusions.”* Independently of its

* *Medico-Chirurgical Journal*, for 1823-4, p. 339. The writer of this review introduces the above observation, by saying that “Dr. O’Beirne has filled many pages with reflections on this case—indeed he is rather too prolix.” But what are the facts? The reflections which this gentleman found so tedious, do not extend over more than twenty-two pages; and their objects are, first, to investigate the seat, nature, causes, formation, curative indications, and treatment of tetanus; secondly, to enumerate the various trials which had been previously given to tobacco in the treatment of the disease—to expose the objectionable manner in which the remedy had been employed—and to shew its superiority as an antitetanic agent, and the best mode of using it; thirdly, to offer some remarks on the disease as I had observed it, particularly during my campaigns in the Peninsula. It could not, therefore, be to the bill of fare, but to the manner in which the different articles were served up, that his objections must have been intended to apply. It appears, however, that his opinion on this point has not had much weight, for the paper has not only been frequently quoted, but praised, and praised more than I am now sensible it really deserves; and I know that it has been, and continues to be, referred to as one containing considerable research, and some original matter. I am enabled to assert, also, that he is grossly in error respecting the only practical point on which he has ventured to differ from me. Speaking, as usual, in the imperial plural, he says, “It appears to us that the principal indications of a useful kind, which the tobacco enema is calculated to fulfil, is the evacuation of the bowels;” (p. 339)—whereas, if he had only consulted the case which he was in the act of reviewing, if he did not doubt the faithfulness of the report of that case, and if he had ever observed the effects of a tobacco enema, he must have

direct tendency to damp inquiry and check improvement, this mode of reasoning is peculiarly inapplicable to tetanus, for, as I shall hereafter prove, it is a disease which, although varying in

been of opinion that this agent also acts by producing a powerful and general relaxation of the muscular system. But I am perhaps attaching too much importance to the uncourteous, unprovoked, and unjust criticism of a gentleman who could hazard the enunciation of such sentiments as the following, viz.: "As tetanus has been treated upon every possible hypothesis as to its etiology and pathology with nearly the same success—or rather want of success, so, we fear, that it would still maintain its unmanageable character, were its seat and causes ever so well known." P. 335. "We are convinced that, in many diseases, the extension of our investigations will be the abridgment of our hopes of cure." P. 336. Such sentiments, I am prepared to assert, are totally inapplicable to the disease in question, and it would be a difficult undertaking to show that they are applicable to many, or to more than an exceedingly small number of other diseases. They betray, also, a rooted disposition to mistake difficulties for impossibilities; and they inculcate any thing but that ardent spirit of inquiry by which science has been so wonderfully advanced and improved. In short, the critical portion of this review is unworthy of a place in a journal remarkable for the value and impartiality of its articles, and for the vast quantity and variety of important information which it circulates.

I consider it to be only upholding my own character, as well as the best interests of humanity and science, to make, even at this distant period, the foregoing observations. But I should be treating the distinguished Editor of the *Medico-Chirurgical Journal* with the greatest injustice, if I did not mention that, for a considerable time previous and subsequent to the appearance of the review in question, he was travelling on the Continent, and, consequently, very unlikely to have had any participation in its opinions.

intensity, has preserved precisely the same characters in all ages, climates, and constitutions; and, consequently, it would be difficult, if not impossible, to assign a fair reason why we should not entertain sanguine hopes, that a remedy which is seen to act powerfully and successfully in one case, may not be expected to act similarly in any given number of cases of the disease. But no argument will be so conclusive on this point, as the fact which I shall now state, and which I pledge myself to prove in my forthcoming work on the subject—namely, that, since the review in question was written, this very agent has amply verified all my anticipations in its favour, and that it has powerfully assisted in enabling me to produce a greater number of genuine cases of tetanus treated successfully, than can be produced by any one author, ancient or modern.

If, then, without the light of any sound pathology to guide me, and with merely the mode of acting and the success of the remedy in a single case to give me confidence, my predictions in favour of the use of tobacco in tetanus have been so amply fulfilled, is it not perfectly reasonable to entertain sanguine hopes of the future success of the tube in dysentery, particularly when we see that the practice is founded upon sound pathological principles, and supported by the favourable results of the first and only case in which it has ever been tried? I should think so.

In concluding my observations on this disease, I cannot avoid expressing a hope that the views and facts which I have so strongly urged upon the reader's attention, may have the effect of inducing him to relinquish his prejudices, if he have any, and to give a full and fair trial to the proposed plan of treatment.

TYMPANITES.

In the month of August, 1831, Miss F., of Great Britain-street, and aged 19, although enjoying perfect health in every respect, with the exception of being more than usually costive, began to perceive that her abdomen was enlarging, and becoming tense and hard. She took purgative medicines which acted freely, but failed in reducing the size or hardness of the belly; and, expecting that these appearances would go off naturally, took no regular advice. In this expectation, however, she was deceived, for they increased steadily, but slowly, until the month of March, in the present year, when she consulted me. Her abdomen was then as large as that of a young woman in the fifth or sixth month of pregnancy; it was tense, hard, light, equally enlarged, and distinctly, but not loudly resonant, on being tapped with the fingers, and the umbilicus, so far from presenting any appearance of depression, projected some lines beyond the rest of the surface of the abdomen, and had a very elastic

feel. She stated that her bowels were rather costive, but that, in every other respect, she was in excellent health. Her mother, who accompanied her, confirmed this statement ; and, as far as I could observe, I saw no reason for doubting its correctness. I recommended her to procure the improved self-injecting apparatus, to pass the tube to its full length up the rectum, and to throw up an enema composed of ten ounces of the fetid enema, two ounces of olive oil, and the same quantity of sulphate of magnesia. This plan was repeatedly employed during a fortnight, but, although it always succeeded in freeing the bowels, it produced no diminution in the size, or change in the feel of the abdomen. Purgatives, tonics, purgatives and tonics combined, together with carminatives, of various kinds, and in every variety of form and combination, were administered, for a considerable time, by the mouth, but without producing the desired effect. She afterwards tried, by my direction, the effect of the tepid shower bath, the cold shower bath, sea bathing, electric shocks passed across the abdomen in various directions, friction of a variety of stimulating liniments to the abdomen, a belt made to fit tightly and support the whole belly, active exercise, change of air, and different other means, but also without the least effect. During all this time, there existed a strong impression upon my mind, that the young lady had never succeeded in passing the tube into the colon. I mentioned

to her my doubts on this point, explained the likelihood that the instrument had become doubled upon itself, in the act of her passing it, and endeavoured to induce her to permit me to introduce a larger and firmer gum-elastic tube than that she had used. To this proposal, however, she obstinately refused to consent, and I ceased to attend her for several months, during which time, it appears, she merely took a purgative occasionally, and continued to enjoy perfect health, but experienced neither a diminution nor an increase in the size of the abdomen. In this state she remained until the 14th of the present month, (November,) when she consented to my proposal. Accordingly, I passed the tube, but with considerable difficulty, into the colon. Neither flatus nor fluid feces escaped through the instrument, but shortly after it was withdrawn, she passed a partly solid and partly liquid stool. Nevertheless, the tumefaction and tension remained as usual, and she was ordered to take two pills composed of four grains of the compound rhubarb pill, the same quantity of compound extract of colocynth, and one drop of croton oil. These procured five or six copious stools, but also without producing any change in the state of the abdomen. In short, with the exception of there being less prominence in the epigastric, and more in the hypogastric region, the abdomen is, at this moment, in the same state that it was in March last, and her health is in every respect as good

now as it was then. As might naturally be expected, however, she is considerably annoyed by the appearance of the swelling, but she makes very little complaint of its weight, or of its inconvenience in other respects.

On the 5th of September last, Miss B., deaf and dumb from her birth, and aged 72, but of remarkably strong constitution for her years, was struck and thrown down by the shaft of a jaunting car, and one of the wheels of the car passed over her left hip. The moment the accident occurred, I was requested to see her at her lodgings in Sackville-street. On seeing her, she made signs to express that she suffered severe pains about the loins, abdomen, and injured hip and groin; and, on making the necessary examinations, I found that the neck of the left femur was fractured within the capsule. The treatment usual in such cases was employed, and matters seemed to be going on favourably for twenty-four hours, at the end of which time, the abdomen became remarkably swollen and tympanitic. The convolutions of the intestines, small and large, could now be both seen and felt to be greatly distended, and in strong outline; the belly felt less firmly and equally distended, but on being tapped, emitted a much louder sound, than in the former case; and in answer to my inquiries, she distinctly conveyed to me, through her sister, that she felt considerable distress, but no sensation amounting to actual pain. The tube was imme-

diately passed up the rectum, and, as soon as it entered the colon, a great quantity of flatus escaped through it with an audible rush, and, to the great relief and satisfaction of this interesting and intelligent old lady, at once caused the abdomen to return to its natural size and form. A pint of the common enema was now thrown up, but with no other effect than that of immediately renewing the same state of distension and distress. Firm pressure on the abdomen failing to make the fluid pass off through the tube, the syringe was attached to the instrument, and, by drawing up the piston frequently and slowly, attempts were made to exhaust the contents of the intestinal canal; but, although the greatest care was observed in managing the stopcocks, so as not to throw atmospheric air into the bowels, some flatus, but none of the fluid could be drawn off. I should here observe, that in this, as well as in every other attempt of the kind that I have made, I have invariably found that it required a much greater degree of force to draw up the piston, than can well be conceived. But to return to the case, the circumstances just mentioned appeared to show that the parietes of the abdomen, although free from marks of violence, had been considerably injured, and had lost nearly all their expulsive power. Accordingly, I perceived the necessity of acting on the bowels by active and stimulating purgatives administered by the mouth; and, with the concurrence of Doctor Ephraim

M'Dowel, who was called to see her in this state, she was directed to take a warm purgative draught, which operated quickly, and removed all distension and inconvenience. From this period she has had no return of the tympanites, or, as some may be disposed to term it, the meteorismus; and, by wearing a broad bandage, applied tightly round the abdomen, the bowels soon regained their healthy tone.

In the first of these cases, the youth of the patient,—the perfect state of her health previous to and throughout the whole course of the disease,—the attack not commencing by borborygmi and other dyspeptic symptoms,—and, above all, the novel and accurate test supplied by the tube, and the circumstances which attended its introduction, are all so many facts combining to prove that the tumefaction could not be caused by air confined and accumulated within the cavity of the intestines. Besides, it will be observed that the physical signs of the swelling were sufficiently distinguishable from those which attended in the second case, and exactly such as might naturally be supposed to characterize a considerable collection of air in the cavity of the peritoneum. We are compelled, therefore, to infer that the case must have been an example of that species of the disease, which is considered to be so rare, and to which Sauvages has given the name of tympanites *abdominalis*. The whole of these facts show, also, that this species of the disease may, although the fact has been

doubted, exist without being combined with that in which the air is accumulated and confined within the cavity of the intestines, and to which the same author has given the name of *tympanites intestinalis*. Are we, then, to suppose that the secreting surface of the peritoneum was the source from whence the air proceeded; or that there had existed, at an early stage of the disease, one or more small openings, formed either by rupture or ulceration, in the parietes of the intestines, which had permitted air to pass into the cavity of the peritoneum, and which had afterwards become closed? With respect to the first of these suppositions, we know that air has been disengaged by the mucous membrane of the uterus, but I know of no facts tending to show that it has been disengaged by serous membranes. And as to the latter supposition, it is rendered so highly improbable by the history of the case, and by the difficulties which would naturally impede the closure of openings in the parietes of an intestine, however small they may be, that I would even be disposed to adopt the former in preference to the latter opinion. As there are no means, however, of satisfactorily deciding the point in question, these remarks on the case may be concluded by observing, that it is one of those in which the tube failed, and will, in all probability, be always found to fail in effecting the object in view.

In the second of the foregoing cases, which

was evidently an example of tympanites *intestinalis*, produced by temporary paralysis of the abdominal muscles and muscular coats of the intestines, the effect of the introduction of the tube into the colon, was most satisfactory, and such as must encourage sanguine expectations, that it will prove a much more certain and expeditious mode of removing this species of the disease, than any of the plans or means usually adopted for that purpose. Hitherto, these means chiefly consisted in the exhibition of purgatives by the mouth and by the rectum, and in the use of antizymic medicines and diet. Mild purgatives have rarely made any impression on the disease; the fear of exciting inflammation of the over-distended intestines has always prevented purgatives of a more active or drastic description from being employed; cathartic enemata, although chiefly relied on, have too often failed, from the imperfect mode in which they were administered; antizymic medicines and diet have the merit of diminishing, but not of removing the evil; and the consequence is, that the disease still retains its fatal character. But the use of the tube is exposed to none of these great objections. It is, at once, safe, certain, and expeditious in its effects, and acts upon principles as sound as they are simple. As none, however, but the most vague notions prevail respecting the cause and seat of the disease, it becomes necessary to show what these principles are. For this purpose, no

mode of proceeding can possibly be better calculated, or more highly illustrative of the subject, than to insert three cases, with dissections, as they are detailed conjointly by M. M. Pinel, and Bri-chetau.* The following is rather a literal than a free translation of these cases.

“ In 1814, there was drawn up, at the Hotel Dieu of Paris, the case of a person attacked with tympanites, and for the cure of which numerous remedies, properly administered, were unsuccessfully employed. The patient died without the cause of the dilatation of the intestines being known. An examination of the body showed a contraction of the left iliac colon, (sigmoid flexure of the colon,) which was the consequence of chronic inflammation, and which almost completely obstructed the escape of gas accumulated therein.”

“ Marie Marguerite Beurè, aged 70, enjoying good health, and never having had any serious illness, experienced, for nearly six months, frequent gripings, which she relieved by injections. On the 10th of March, the gripings increased, and the patient could not be relieved by any means. On the 13th, after a plentiful meal, she was attacked with obstinate vomiting, which continued during the whole night. She vomited a considerable quantity of alimentary and mucous matter, and felt severe pains in the abdomen, which from that time

* Dictionaire des Sciences Médicales, art. “ Tympanite.”

began to swell. On the 18th Beurè entered the hospital; the belly was then voluminous, inflated, and gave the sound of a drum on being struck; in other respects, it was not painful to the touch, but the patient complained from time to time of griping. The face was a little contracted; the pulse appeared to be in a natural state. A finger was introduced into the rectum, and it was ascertained that no fecal matter was accumulated there; diluent and purgative drinks were prescribed, and eight leeches applied to the anus. These means relieved the patient, who said she had been at stool, and had passed much wind upwards and downwards. The fourth day, greenish vomiting came on; the sixth and seventh, the belly increased greatly in size, and became painful on pressure; leeches were again applied; enemata were administered, and warm fomentations applied to the belly. The patient died on the ninth day from her admission into hospital.

“ EXAMINATION OF THE BODY. The belly tense and very voluminous, and gave, by percussion, the sound of a drum. Although there was a sufficiency of plumpness, the very distended abdominal parietes were reduced to the third of an inch in thickness. The intestines, the rectum excepted, were slightly inflamed, and excessively distended; fetid gas and yellowish, liquid, fecal matter escaped from them. The rectum, pressed or sunk down upon itself, seemed contracted in comparison with the other intestines. Having examined

the point where the distension of the intestines terminated—viz., the inferior part of the S, (sigmoid flexure,) of the colon, it was seen to present an annular contraction, which scarcely permitted the introduction of the little finger, and which was formed at the expense of the mucous membrane in a thickened state ; on incising this kind of ring, no appearance of carcinomatous tissue was observed. Was it not extremely probable that this contraction had interrupted the continuity of the intestinal canal, and that the accumulated fecal matter had disengaged the gas which had distended the intestinal tube.”

“ Marie-Louise Hitier, aged 40, of a lymphatic temperament, and very corpulent, entered the Hotel Dieu on the 29th of July, 1816. She then complained of wandering pains in the abdomen, which was slightly painful on pressure, and had for some time acquired a greater size than usual ; a little paleness and bloatedness were added to the symptoms already mentioned. The state of the patient immediately improved under the use of emollients and sedatives, but the belly still remained swelled. The patient was tormented alternately by diarrhœa and constipation. Her state presented in other respects nothing serious or alarming ; it was for some time stationary, and scarcely attracted the attention of the physician. Nevertheless, towards the end of July, the abdominal pains reappeared with fresh intensity, the belly swelled still more ; a progressive

sinking or prostration manifested itself, and adynamic symptoms suddenly terminated the life of the patient on the first of September, one month from her entrance into hospital.

“ EXAMINATION OF THE BODY. The colon, cæcum, small intestine, and the duodenum, were so distended, that it was impossible to cut through the abdominal parietes without injuring these intestines, which were at once seen to be sound, as also all the other viscera of the abdomen. Much gas escaped from the digestive tube, the distension of which terminated at the inferior part of the left iliac colon (sigmoid flexure): at that point, this intestine had contracted adhesions with the superior part of the iliac fossa. A slight pull, made in order to examine these adhesions, having ruptured the intestine, there flowed from it a black, liquid, and fetid matter. It was then seen that the S (sigmoid flexure) of the colon had formed a cul-de-sac, in consequence of the adhesions which it had contracted: inferiorly, there was seen an organic alteration developed in the mucous membrane of the intestine, and which considerably contracted its diameter.”

“ It is a remarkable peculiarity of these three cases, that nearly the same alteration has been found at the same point of the digestive tube; can it be that this point is more disposed to this than any other, on account of the sort of curve which it forms.”

The reader will at once see that it is not to any

curvature or angle formed by the sigmoid flexure of the colon, but to the peculiar structure of the rectum, the nature of the functions performed by its upper annulus or entrance, and a spasmodic state of this part of the intestine, arising from the excitement to which it is so frequently exposed, that we are to attribute the circumstance of constriction having been found at the same point in each of these three cases. He will not view this circumstance in an accidental light, but as one closely connected with an established principle ; and he will come at once to a more general conclusion than he would otherwise be justified in adopting—namely, that the obstruction which takes place in tympanites, is produced in the same way, and removable by the same means as in colic, enteritis, and other intestinal diseases. Indeed, it is impossible to read the account of these cases, and to observe that, while the small intestines, the cæcum, and the whole of the colon were so greatly distended with gas, the rectum alone remained contracted, and opposed the escape of the confined air, without feeling a conviction that the introduction of the tube into the colon would have given exit to the flatus, and saved the lives of the persons mentioned in these cases. That this could have been easily and safely accomplished, at any early period of the disease, is certain ; but many will perhaps doubt both the practicability and safety of using such a degree of force as would be necessary in an advanced

period of the disease, and when the parts are extensively thickened and disorganized. In such cases, however, it should be recollected, first, that the patient must inevitably fall a victim to the malady, if he be not relieved by this or some other mode equally severe, and perhaps less safe ; secondly, that however great may be the injury inflicted by the introduction of the tube, it will be more than compensated by the immediate relief given to the patient, and the subsequent repression of the disorganizing process ; thirdly, that the instrument is embraced by the rectum, that its motions are confined to the tract of this intestine, that its entrance into the colon is greatly favoured, if not secured, by the distended state of the sigmoid flexure ; and, consequently, that nothing but the most ill-applied and brute force can possibly cause the tube to perforate or injure the walls of the sigmoid flexure of the colon, or any part of the rectum but that upon which it is necessary to act. To me, at least, these arguments appear to be conclusive in favour of employing even a very considerable degree of force to effect the complete introduction of the instrument.

The reader will also perceive that the practice is exceedingly likely to prove of great value, in the treatment of that distressing symptom, meteorismus, which so often attends fever, so constantly exasperates the other symptoms of the disease, and is so frequently the consequence of over-purging.

TETANUS.

Constipation of a peculiarly obstinate character, is one of a number of symptoms which never fail to attend genuine tetanus. In fact, it has yielded so rarely to any of the means hitherto employed, that it is generally considered one of the greatest obstacles to the successful treatment of the disease. But it affords me great and unmixed pleasure to be enabled to assure the reader, that the introduction of the tube never fails in overcoming it, and that it effects this object as expeditiously as in less violent diseases. It cannot be expected, however, that I should here enter more fully on the subject, as my work on tetanus will be published in the course of a few months.

DELIRIUM TREMENS.

This disease is not necessarily attended with constipation, and although produced by disorder of the digestive functions, it belongs to the class neuroses. If, therefore, arrangement, and not utility, were to be strictly attended to, this affection should not be introduced among intestinal diseases. But as I have now concluded the consideration of the latter, and feel it incumbent upon me to make known a valuable application of the tube

to the treatment of the former, but one given to it with a view quite distinct from that of removing constipation, I should hope that I may be excused for inserting the following cases, with a few introductory and original observations on the disease, as I observed it during my military and civil life.

In almost every case of delirium tremens that I have seen, careful inquiry into its previous history has made me acquainted with a circumstance which must be familiar to every experienced practitioner,—namely, that, for some time before the attack of the disease, the patient has scarcely eaten any breakfast, and very little at dinner; and has been gradually emaciating, and becoming weak and languid. This being the case, it is but reasonable to infer that the sensorial exaltation which ensues, arises as much from deficient supply of food, and, consequently, of blood to the system, as from the excitement caused by the abuse of spirituous liquors; and that one of the curative indications, and a very important one, should consist in stimulating the system naturally, as by proper nourishment, as well as by such artificial means as opium, camphor, wine, or spirituous liquors of any kind. In point of fact, remedies of the latter description must be but temporary in their effects, and act under every disadvantage, so long as the vascular system continues to be weakened by a defective

supply of blood, and no longer in equilibrio with the nervous system, or capable of supplying this system with the necessary quantity or perhaps quality of blood. Accordingly, although they succeed in persons who have not had many attacks of the disease, and possess sufficient recuperative powers, we know that they too often fail in cases of an opposite description. It may be objected, however, that the patient's stomach is too irritable to bear food, or that he has an unconquerable disgust to it, and, in short, that he either cannot or will not take any nourishment, or will only take it in such small quantities as would be quite insufficient for the purpose. This objection is supported by experience and reason. But what objection can be urged against the plan of nourishing the patient per anum? Such a mode of effecting this important object is certainly still open to us, yet it appears to have been totally overlooked by every author who has written on the disease. It has even escaped the observation of my valued friend and fellow-pupil, Dr. Andrew Blake, of Nottingham, whose work on the subject is one of the best, and by far the most practical of any that we possess. This oversight cannot have been owing to ignorance of the necessity of nourishing the patient; for the previous history of almost all cases must have rendered that perfectly obvious, and it is usual to see, at least, some attempts made to effect this object in the ordinary way. It appears to be much more owing to a very general

impression, that the large intestines are endowed with assimilating and absorbing powers of a very low order. But it is only necessary to observe the circumstances under which these powers have been put to the test, in order to see that such an impression is entertained on very insufficient grounds. For example, the instances in which it has been attempted to support the system in this mode, appear to be limited to cases of stricture of the œsophagus, scirrhus of the pylorus, inanition from protracted abstinence, all of which are sufficient to destroy life in other ways as well as by deprivation of food. It appears also that these attempts have been generally made in aggravated forms of these affections, at a period when great debility, emaciation, and, of course, danger existed, and, in short, as a last and desperate resource. It is obvious, therefore, that it would be coming to an unfair conclusion, to infer, that, because life cannot be long supported by administering nourishment per anum under such circumstances, the assimilating and absorbing powers of the large intestines are necessarily of a very low order. The same reasons render it also obvious, that purely functional diseases, or those of a structural but less desperate nature, which may require the system to be supported in this mode, would supply much fairer opportunities of testing the powers which the large intestines may possess in these respects. In as much, however, as the former is, in general, a much more remediable

class of diseases than the latter, and as delirium tremens is rarely more than a functional disorder, it might naturally be inferred that the proposed plan would be most applicable to the treatment of this disease. But I am enabled to remove all doubt on the point, for, during the last five years, I have employed the plan in a considerable number of cases, and always with the happiest results. The following are the first and last of the instances in which I have employed it, and they will be found to exhibit not only the value of the practice, but also the superiority of the tube and syringe as certain means of convey liquid nourishment into the large intestines, and causing it to be presented to and acted upon by a considerable extent of the surface of these intestines.

Late in the evening of the 9th of November, 1827, I was requested to visit Mr. —, of Denmark-street. On my arrival, I met Mr. Thomas Rooney, a surgeon, and Mr. Daly, an apothecary, who informed me that the patient I was about to see, although little more than thirty-three years of age, had, in consequence of very intemperate habits, experienced three or four attacks of delirium tremens; that the present was an attack of the same kind; and that it showed itself on the 1st of November, and commenced by wildness of manner and conduct, rapidity and incoherency of language, terror of various imaginary objects, great vigilance, and the usual train of symptoms. These gentlemen also informed me, that opium,

camphor, saline draughts, occasionally purgatives, small quantities of wine and punch at regulated periods, blisters to the occiput, nape, and calves of the legs, and sinapisms to the soles of the feet, had been employed, without making any favourable impression on the disease ; and that, for some hours before my visit, the patient either could not or would not open his mouth or swallow, and had become much worse in every respect. On seeing him, his face appeared deadly pale, his countenance, particularly the eyes, had a fierce expression, the pupils were much contracted, the teeth firmly and closely set, the extremities cold and clammy, and the pulse was quick, weak, and thready ; he was lying on the bed, half drest, for he could not be induced to undress, rapidly muttering something to himself, apparently regardless of the presence, conversation, or questions of those about him, and he had blisters on the calves of the legs and sinapisms on the soles of his feet. Under these desperate circumstances, it struck me, for the first time, that there might be a chance of supporting the strength of the patient, and eventually, of saving his life, by repeatedly injecting strong broths into the large intestines ; and this idea seemed to be strongly sustained by the circumstance that he had long been in the habit of consuming but a very small quantity of food. Accordingly, I recommended a gum elastic tube to be introduced into the colon, and to inject

through it, every second hour during the night, a pint of strong calf's head broth, prepared without salt, and which is said not to have a purgative quality. This plan was agreed on, and on the following morning, the 10th, we found that four pints of broth had been administered as directed; that the whole of this quantity had been retained; and that the general state of the patient was greatly changed for the better, his extremities being warm, the pulse much fuller and stronger, the countenance less haggard, and the intellectual faculties in a much less disturbed state. Ordered to have two nutritive injections during the day, and to have, every fourth hour, a draught composed of half an ounce of camphor mixture, ten grains of carbonate of ammonia, and fifteen drops of acetum opii.

11th. Has been observed to slumber occasionally during the night, and his general state is still further improved this morning: treatment as yesterday.

12th. Slept for a few minutes, from time to time, during the night; much more rational than he has, as yet, been, but rather weaker than yesterday: same treatment repeated, with the addition of a mixture composed of two ounces of brandy and six ounces of the compound infusion of mint, of which a table spoonful is to be given every second hour.

13th. More excited and unmanageable than yesterday, face much flushed, bowels not freed

for several days. Former treatment to be discontinued ; to have a castor oil draught ; cold lotions to be applied to the forehead and temples ; and the rest of the head to be covered with a large blister.

14th. Much more rational, and much better in every respect than he has, as yet, been. All medicines to be discontinued, but to have three nutritive injections during the day.

From this period, with the exception of an aperient enema administered on the 17th, it was not found necessary to employ any other means than injections of calf's head broth given by the tube ; the patient gradually lost the irritability of stomach and dislike to food which existed previously, and, on the 26th he was in his perfect senses, and in tolerably good health. Since that time, I have attended the same gentleman in two attacks of the disease, but they were of a much milder description ; and I understand that he has had several others.

On the 30th of June last, Mr. —, of Abbey-street, aged thirty, of low stature, delicate constitution, and intemperate habits, was seized with vomiting, and slight cramps in the calves of his legs, his pulse fell to 70, and became very weak, his bowels had not been freed for several days, and he passed a natural quantity of urine. In this state he was seen by his apothecary, Mr. Daly of Henry-street, who ascertained that, in addition to his usual free mode of living, this gentleman

had been, for several months, in the habit of adding brandy to every thing he took, in order, as he said, to escape an attack of the malignant cholera, which was then at its greatest height in this city. His bowels were first freed by calomel and powder of scammony. He was then directed to take, every second hour, a pill composed of three grains of calomel and half a grain of opium, and to wash down each pill with a table spoonful of a mixture consisting of six ounces of peppermint water, half an ounce of compound tincture of cardamoms, and the same quantity of syrup of ginger. On the following day, the 1st of July, he was considered to be better, but it appears that the attack assumed another form about midnight. Early in the morning of the second of July, I was requested to see him with Mr. Daly, who gave me the foregoing account of the case. He was then complaining loudly of frightful objects on the ceiling, and seemed to be particularly annoyed by a person, who, he said, was constantly grinning spitefully and making faces at him from a corner of the room; yet, when his attention was fixed, and he was assured that the objects which disturbed him were imaginary, he spoke rationally, and seemed to be sensible of the delusion he was labouring under; the lowest whisper seemed to reach his ear, his eyes were in constant motion, and no stir or movement escaped his observation. His hand trembled very much when he held it up, or attempted to take or to hold

any thing ; his pulse was quick and weak, his stomach so irritable that he vomited up almost every thing he took, and his bowels were rather confined. Ordered to have a large blister applied to the epigastrium ; to get an enema composed of ten ounces of barley water, and two ounces of castor oil ; to take, every hour, a pill consisting of three grains of camphor, and the eighth of a grain of opium, to wash down each pill with a table spoonful of equal parts of sherry and water ; and as soon as the bowels were moved, the tube to be introduced, every third hour, up the rectum, and through it a pint of calf's head broth, prepared without salt, to be injected by a proper syringe.

3d July. The bowels have been moderately moved, four nutritive injections have been administered, and he has taken his pills and wine since yesterday. He is now much more rational and composed, and less disturbed by imaginary objects. His pulse is fuller, stronger, and not so quick, and the wine and pills, which had been rejected, remain on the stomach. Directed to continue the pills, wine, and nutritive injections as yesterday, and to take, every third or fourth hour, a draught composed of two ounces of compound infusion of gentian.

4th. Improved in every respect. Pills discontinued ; treatment, in other respects, as yesterday.

5th. Perfectly rational, and no longer disturbed by imaginary objects ; scarcely any trem-

bling of the hands on holding them up ; no irritability of stomach, and some degree of appetite. Treatment as yesterday.

6th. Still more improved in every respect : treatment continued.

7th. Convalescent : nutritive injections discontinued.

9th. Removed to the country, for the benefit of his native air.

In the first of these cases, the patient was so dangerously circumstanced, and so peculiarly affected, that it seems impossible to conceive any other means by which his life could have been saved, or the difficulties of his case so effectually surmounted. In the last case, it is seen that nutritive injections so effectually restored the equilibrium between the vascular and nervous systems, that they rendered it unnecessary to employ more than an exceedingly small quantity of opium or camphor, and, indeed, so small a quantity of the former, in particular, that, considering the extent to which it has hitherto been found necessary to be urged, it could not, under any other circumstances, have proved sufficient for the cure of any but the mildest and most incipient case of the disease. Upon the whole, these cases, independently of the fact of their being but selections from a number of others, can scarcely fail to give the reader such a high idea of the usefulness of the practice, as must convince him of the necessity of combining it with the usual stimulo-narcotic plan.

I cannot conclude the consideration of the subject of delirium tremens, without mentioning that I have never seen, in the same short space of time, so many cases of the disease as I have seen during the last nine or ten months. But this circumstance is easily explained; for the vice of drunkenness, formerly so prevalent in this metropolis, had been gradually disappearing until the appearance of malignant cholera, in March last, when, from a very general but very mistaken and unfortunate impression that spirituous liquors acted as preventives of this dreadful epidemic, it was revived to a most unprecedented and deplorable extent.

It is to be presumed that the practice of administering nutritive enemata in this way, is equally applicable to every other disease, in which there is considerable irritability of stomach, and, at the same time, an urgent necessity for supporting the system. Such a combination of circumstances is frequently met with, and found very embarrassing in the treatment of continued fever, indigestion, and various other diseases.

My views of the process of defecation, and their application to the pathology and treatment of diseases of the stomach, bowels, and other organs conclude here; and now that they are fully before the reader, he will find, and I make the assertion

deliberately, that no trace of them is discoverable in any work, ancient or modern, and that the whole subject, so far from being merely improved or remodelled, has been actually created. But circumstances render it necessary that I should discuss and establish the claim which I have asserted to the origination of the plan of mechanically dilating the rectum, and employing the gum elastic tube for this purpose, in the treatment of intestinal and other diseases ; and it appears to me that I could not possibly select a more fit occasion for doing so than the present, when the subject is so fresh in the memory.

It has long been the practice to employ bougies for the removal of constipation, whenever symptoms have indicated that the obstructed state of the bowels depended upon the existence of stricture of the rectum. It is not unlikely, also, that a gum elastic catheter, or an œsophagus tube, may have been used, on such occasions, and with the same view ; but no case of the kind appears to have been published. Even the recorded instances in which the bougie has been successfully employed in such cases, are so few and unsatisfactory, that I shall extract the following case, with observations, from the work of one of our most distinguished and practical writers, as being the only one in which the principles and practice are clearly defined. “Strictures,” says this author, “take place in different situations ; but they occur so frequently about the sigmoid flexure of

the colon, near its termination in the rectum, that this part should be carefully examined in every case of a total obstruction of the bowels. The insertion of an unyielding tallow candle, though often practised, has been generally found painful and inefficacious. It is requisite for the purpose to employ a bougie thirteen inches long, and of a proportionate strength; which should also be directed, with a nice hand, by a skilful surgeon. I lately saw a lady thus relieved, who had been twenty-six days without any evacuation from the bowels, and who seemed nearly exhausted by violence of pain, and distension of the abdomen, incessant vomiting, hiccough, cold sweats, &c.” * This extract shows that Willan, like every other author to the present day, considered that the mere casualty of stricture being found at the upper part of the rectum, and not a fixed general principle, should determine the necessity of introducing bougies for the removal of constipation; and that this instrument was meant to dilate one particular point, and not a considerable extent of the rectum. Indeed, the manner in which he speaks of the nicety and skill required in introducing a bougie through the contracted opening in the upper extremity of this intestine, shows that he considered this to be the

* Reports on the Diseases in London, by Robert Willan, M.D. F.R.S., p. 185.—London, 1801.

great difficulty, and that this difficulty arose from the whole of the inferior portion of the bowel being, as has been generally but erroneously supposed, in an open or dilated state, and consequently in a state which would render it necessary to possess considerable tact and a correct knowledge of anatomy, in order to enable an operator to direct the point of the instrument towards the precise point at which this opening should be found. Moreover, the case of the lady to which he alludes, affords no grounds for believing that the obstruction was produced by organic stricture, or by any but the most common cause of constipation; and, consequently, it might well be ranged beside some of the cases of colic or ileus detailed in this work, and rather be considered an illustration of my views than of his. Taking, therefore, the opinions of this writer, as a fair standard of those hitherto entertained and acted upon, it must be manifest that I have employed and advocated the practice with very opposite views, upon infinitely more correct, more general, and more extensively useful principles, and in a very different, more appropriate, and successful manner. Indeed, the differences in these and other respects are so very obvious, if not self-evident, that many will consider it a work of supererogation to point them out. But I have reason to know that some entertain very confused and unfounded impressions on the subject, and require to be aided by such an explanation, before they can be

enabled to see this matter in its clear and proper light.

But the circumstances which chiefly renders it necessary that I should establish my claim to being the person with whom the practice originated, is the fact of Doctor Alexander Russel Duguid, of Kirkwall, Scotland, having published in the year 1829, a "Case of Intestinal Obstruction successfully treated by Mechanical Means," and in which he employed the tube of a stomach pump. Before, however, I can offer any observations on the claim which this gentleman may be considered to have from priority of publication, on the case itself, or on the views which led him to employ this mode of treatment, it will be necessary to extract the whole of his paper from the thirty-second volume of the Edinburgh Medical and Surgical Journal, in which it is inserted. It is as follows.

"On the 10th December, 1828, three o'clock P. M., I was called to visit J. H. a young man, about twenty years of age, who had suffered severely, since the afternoon of the 8th, from obstinate constipation, attended with occasional paroxysms of violent pain in the abdomen, generally ending in efforts to vomit. On the 9th he had taken two ounces of castor oil; and a common domestic enema had been administered; but the greater part of the oil had been vomited, and neither of these expedients produced the smallest discharge from the bowels, or any mitigation of

his sufferings. He had also used the warm bath. Abdomen hard, and very much distended ; pulse, 100.

“ *Emitr. Sanguis ad ℥xxiv., et habt. Haust. c. Tinct. Opii gutt. L.*

“ In two hours the opiate began to have its due effect, and he experienced almost total cessation of the abdominal pain and retching. This appearing a favourable opportunity for the exhibition of a purgative, an ounce of castor oil was given every half hour, till four ounces were taken without being rejected ; and I also threw up a strong enema of senna and salts. The latter having come away in half an hour without any trace of feculent matter, it was frequently repeated, but always with the same result. At nine P. M. he was again bled to 16 ounces, and an emulsion containing two drops of croton oil was given every half hour. The greater part of this remained on the stomach, but at twelve o’clock, P. M., no evacuation had taken place from the bowels, though repeated attempts had been made, and the immunity from suffering which the patient had enjoyed while under the influence of the opiate was now at an end, the paroxysms of pain having returned with aggravated violence.

“ Being twelve miles from home, and from the nearest supply, I was unavoidably confined to the chance which remained to my patient from mechanical means alone, since no new medicinal

expedients could be resorted to. Dilatation of the rectum with warm water, thrown up by Weiss's powerful syringe, was next resorted to. As soon as about a pint and a-half of warm water was thrown up, he complained of much pain and distension, and it was returned with great force, in spite of my efforts to prevent it, and without any trace of feculent matter. This was frequently repeated, with the same result. I then introduced the elastic tube of Weiss's instrument, well oiled, about ten inches into the rectum, and finding an obstruction to its further passage, I fitted the syringe to its extremity and continued to exhaust the air for a minute or two; but this having no effect, I attempted to push the tube past the obstruction. After some difficulty, and repeated trials, I gained a few inches, when all at once, to my great satisfaction, the resistance was overcome, and a copious discharge of very fetid flatus, with some liquid feces, took place through the tube, with almost instant relief of the distension and pain of the belly. I then fitted the syringe to the extremity of the tube, and pumped out a large quantity of feculent matter of the appearance and consistence of yeast. When this was too solid to pass through the tube and syringe, so as to choke the instrument, a quantity of warm water was thrown in, and the pumping process resumed. In this way a great accumulation of feces was brought away, with total relief of all the symptoms. Upon withdrawing the tube, the cause

of the obstruction, which indeed I had previously surmised, became very apparent, by the thin streaks of hardened feces with which the tube was coated on various parts of its surface, and which were confined to that portion of it which had passed the region, about ten inches from the anus, where the great difficulty of introduction had been experienced. An opiate enema was now administered, and I left my patient at eight A. M. of the 11th. A purgative mixture of senna and salts was sent him, which operated well, and left him convalescent.

“Obstruction of the intestinal canal is a disease so serious in its nature, of so frequent occurrence, and so often unmanageable by the ordinary treatment of glysters and purgatives, that any available addition to the resources of our art, free from danger, and of easy application, cannot fail to be acceptable to the professional public. So far as I know, the expedient, the good effects of which in one instance I have detailed, has been hitherto untried, nor was I aware that it had ever been proposed, until long after the occurrence of the above case. At all events, it has no place, as applicable to desperate cases, in the systems of medicine which are generally put into the hands of young practitioners. Our principal reliance is placed on purgatives, mechanical dilatation with warm water, and tobacco, in the form of smoke or infusion. When excessive vomiting, indicating the inversion of the peristaltic motion,

and great swelling of the abdomen have taken place, many inconveniences attend the use of purgatives ; for even when the difficulty of getting them retained on the stomach is surmounted, and their influence is duly exerted on the bowels, they seem to increase the distension by forcing down the contents of the upper intestines, and thus produce a state which is unfavourable for the action of the abdominal muscles in the expulsion of feces. On this account, the croton oil, the most powerful of them all, seems better adapted to cases where the costiveness is owing rather to torpor than to obstruction of the bowels. The application of the tobacco enema, though sometimes effectual, is also in some degree objectionable, because it is seldom had recourse to unless as a last resource ; and when great prostration of strength has already taken place, its debilitating effects are confessedly not free from danger. If, then, a great proportion of cases of ileus be caused by a hardened ball of feces in the colon, at no great distance from the anus, perhaps at the sigmoid flexure, a different, or at least an additional expedient, when all others fail, ought to be employed. A hollow bougie of elastic gum, with its point conical and perforated on the sides, ought to be introduced into the rectum ; and the seat of the obstruction having been thus ascertained, by cautiously applying additional force, it may be pushed through the offending substance, if merely hardened feces, and then the manage-

ment of the case will become comparatively simple. It will be necessary, no doubt, in such an operation, to be cautious. It is possible that the point of the tube may become entangled in the coats of the intestine, and an obstacle to its farther progress may be thus produced ; but the resilience of the instrument will sufficiently indicate the nature of the difficulty, and communicate a very different feeling from the resistance afforded by an inelastic substance, such as hardened feces. Where the obstruction arises from calculus, no benefit is to be expected from the measure I have detailed ; and even the natural contents of the intestines may become so indurated as to form an obstacle almost equally insurmountable, at least by an instrument of so soft and yielding a nature as can be safely employed for such a purpose :—but it may be presumed that such cases are comparatively rare, and that in general the cause of the disease may, with care and perseverance,—more especially if within the efficient reach of the tube,—be eventually overcome. Of the bad effects which might by possibility result from such a practice, I should wish to speak guardedly, my experience being much too limited. It is certainly easy to conceive that any violent and repeated efforts might produce injury to the mucous coat of the intestine—perhaps dangerous inflammation. But it is not probable that such accidents will occur in the hands of any experienced person ; and that they are not

peculiarly liable to happen, may be inferred from the freedom which is used with these parts, in introducing bougies for the dilatation of permanent stricture, in which cases, from the morbid irritability already existing, accidents might more naturally be expected to follow.

“Several months ago, a similar case was detailed in the Medical and Physical Journal, occurring at Genoa, in which, after the failure of every other remedy, the disease was happily overcome by exhausting the air in the rectum, beneath the seat of the obstruction ; but it may safely be affirmed, that in many instances so feeble an expedient would be altogether nugatory. It forms, however, the nearest approximation to the practice above described which has as yet occurred to me, and was unquestionably the hint which led me to the adoption of a bolder and more effectual measure.”

This case exhibits another and a very striking example of the success of the practice, and some of the views which it appears to have suggested, are calculated to convey very favourable impressions of Doctor Duguid's acuteness and powers of observation. But when we perceive that he believed “a great proportion of cases of ileus to be caused by a hardened ball of feces in the colon, at no great distance from the anus, perhaps at the sigmoid flexure ;” and that his only object in employing the tube, was to act upon this ball, and to push the instrument “through the offending sub-

stance," instead of pushing it through the contracted rectum ; we must be convinced, that the principles upon which he employed this mode of treatment were just as unsound as they were undecided, and that he only succeeded by one of those happy chances which have so often caused sound practical conclusions to be drawn from the most unsound theoretical premises. It is necessary, however, to notice one of his observations in which he says that this mode of treatment "has been hitherto untried," and that he was not "aware that it had ever been proposed, until long after the occurrence of the above case." Now, with respect to the assertion that the practice had not been tried before the time he speaks of, I have related cases in which it was successfully employed two, three, and even four years before that time, and when my work on tetanus makes its appearance, it will there be found, that I employed it more than five years before the time in question. It so happens, also, that many of the persons in whom it was employed at these periods are alive, and ready to prove the truth of my assertion in this respect. But what, let me ask, was the source from which he learned that this mode of removing constipation had ever been proposed ? I confidently assert that no proposal bearing any resemblance either to his or to mine, has ever appeared in an authorized printed form. The natural presumption, therefore, is, that he obtained this imperfect description of information

through the medium of public rumour ; for, so far from concealing my opinions or practice respecting intestinal diseases, I have for years endeavoured to give them every publicity, by adverting to them in clinical lectures delivered to large classes of students from various parts of this country and the united kingdom ; by impressing them upon all my professional friends and acquaintances, and, in short, by every means in my power. Indeed, my exertions have been so unremittingly directed to extending the practice, that I am only surprised to find that this gentleman is the only person who can contest with me the credit of its introduction. It should be clearly understood, however, that neither the last observation, nor any other which I have made on this occasion, is intended to insinuate that he was aware of the practice having been employed, at the time he tried it so successfully, or that he has stated anything but what he believed and had heard. But I am confident that, when he comes to know that I employed this mode of treatment successfully for so many years before he thought of it ;—that it was in very general use in this country at the time he tried it ;—that the views which induced him to try it, are perfectly erroneous ;—and that the success of the trial which he made is owing solely to the chance by which false theory is known to lead to sound and successful practice ; in short, that when he comes to read this work, even Doctor Duguid must be convinced,

that any claim which priority of publication might otherwise give him to the introduction of the practice, should yield to that which I have established by such numerous and incontrovertible proofs.

THE following letter, addressed to me, was received too late to enable me to insert the cases; it contains under their respective heads. Of the first of these cases I have now a perfect recollection, but, unaccountably enough, it totally escaped my memory in preparing the article on strangulated hernia, although it was actually the first instance in which the novel mode of treatment advocated in that article, was employed. The second of these cases describes an interesting form of hysteria, and shows the importance of the tube in the treatment of that most protean of all diseases. They are, therefore, too important to be omitted. The following is the letter to which I allude.

" 32, Harcourt-street, Nov. 29, 1832.

" MY DEAR SIR,

" I should have sent you the cases before now, but that I waited to make search amongst my papers for the notes which I had made, at the time they occurred. I have been equally unsuccessful in my inquiries after the individuals, who were dispensary patients.

" The case of strangulated hernia occurred two years ago, and was that of an old man who lived in a wretched and filthy hovel in Hanover-square, off Hanover-lane. The hernial tumour was situated a little below the umbilicus, and had

resisted all attempts at the taxis. The case was seen by yourself and Mr. Robert Adams, in consequence of considering it one that would require operation. In consultation, you proposed to try the effects of enemata given through the usual gum elastic tube. His bowels had not been moved for several days. I introduced the instrument myself with great ease. On arriving at the sigmoid flexure of the colon, a considerable quantity of flatus and fluid feces flowed through the tube; the patient expressed himself as feeling greatly relieved, and on examining the situation of the hernia, the tumour had completely disappeared. I next threw up (without withdrawing the tube) a strong cathartic enema, which, in a few minutes, produced a copious discharge of solid and liquid feces. These are the prominent features of this case.

“ The other case was one of aggravated hysteria. The patient, named Eliza O'Connor, ætat. twenty-five, florid and robust, residing at 28, Wood-street, had laboured under a very severe form of hysteria, in which she lay rigidly extended, and in an unconscious state for nearly the whole day. She had had repeated attacks of this nature, and in the last attack obstinate constipation had existed for six days. The most active measures had been resorted to, in order to produce evacuations from her bowels, but without success. On introducing the elastic tube, as in

the former case, some flatus escaped, on reaching the colon. On throwing up a strong and large terebinthinate enema, the bowels almost immediately yielded, and an immense discharge of solid and liquid fæces soon followed. The patient was quite well in a few days.

“ I am, my dear Sir,

“ Faithfully your’s,

“ G. T. HAYDEN.”

Since the foregoing letter was sent to press, I have met with a case of strangulated hernia, in which the introduction of the tube enabled me to effect the complete reduction of the hernial tumour, under circumstances too instructive and interesting not to be also reported here. The case is as follows.

On Saturday, the 15th of December, 1832, after prescribing for a gentleman confined in the Four-Court Marshalsea, I was requested to visit Mr. John F——l, who was said to be very ill in one of the rooms of the prison. On seeing him, he appeared to be under thirty years of age, and very robust; his countenance was pale and expressive of acute pain, and his pulse quick, hard, and rather small; he complained of severe pain in the abdomen, stated that his bowels had not been freed for several days, and pointed to

the hearth, where, he said, he had just vomited up the contents of his stomach. After his friends had retired at his request, he informed me that he had been afflicted with rupture for several years ; that he had never worn a truss ; and that although the bowel had frequently descended, it was always easily returned until early that morning, when he failed in reducing it as usual. On examination, I found that the abdomen was tense and painful on pressure, and that he had a moderate sized inguinal hernia on the right side. The hernial tumour was very tense, particularly at the ring, slightly suffused with redness, and seemed to be altogether formed by prolapsed intestine distended by air, and, as far as the touch enabled me to judge, containing a small quantity of feces. Immediately after ascertaining the nature of the case, the patient was placed on a sofa, in the usual position, and attempts were made at the taxis. These attempts were made four or five times, at distinct intervals, and with as much force as could be safely employed, or as he could bear, for he complained of the severe pain which they gave him ; but I found it impracticable to reduce the hernial tumour, and improper to persevere longer in efforts for that purpose. Finding that I had failed, he informed me that he had sent for a neighbouring apothecary to take blood freely from his arm, and apply cold lotions to the scrotum, as these means had saved him from an

operation when he was first ruptured, and he earnestly entreated me to adopt the same practice. But I succeeded in inducing him to wait until I could procure a tube and try its effects. Accordingly a messenger was despatched to my house for the necessary apparatus. In the meantime, the apothecary, Mr. Carroll, of Meath-street, arrived, and was requested to go for a purgative injection, composed of a pint of the common enema, an ounce of oil of turpentine, and the same quantity of sulphate of magnesia. As soon as this and the apparatus were procured, the patient was turned on his left side, with his knees drawn up, and the tube, which happened to be a stomach tube, after being oiled, was passed up the rectum, without much difficulty, to the height of about ten inches. No flatus could be heard escaping, but Mr. Carroll, who assisted me, on placing his hand close to the lower extremity of the instrument, said that he distinctly felt a current of air passing from it to his hand; and, on looking at the hernial tumour, we both agreed that it was sensibly diminished in size: the patient also said that he was certain of the fact, and assured us that he felt himself considerably relieved. This appearing to be a favourable moment for attempts at the taxis, they were renewed, but proved ineffectual. Considering the failure to arise from the eye or opening in the side of the tube having become blocked up with solid feces, I removed the

instrument, and found that I had judged correctly. The tube was now well washed and syringed out with cold water, and after being dried and then oiled, was again introduced, and passed up to a greater height. Immediately a still greater reduction took place in the hernial tumour, and, on making another attempt at the taxis, the tube still remaining within the bowels, it succeeded, and the strangulated intestine was completely reduced. The patient immediately felt himself freed from all pain and distress, but as the sigmoid flexure was evidently loaded with solid feces, it was considered necessary to throw up the enema which had been prepared. His bowels acted freely soon after, and, on visiting him the following day, I found him perfectly well, but lying in bed, as he was directed, until a proper truss could be applied.

On asking him the cause of his not having worn a truss, he stated that a surgeon had advised him to do so, but that he was afterwards dissuaded from it by a physician, whom he named. Knowing the high character of the latter gentleman, I endeavoured to discover the reason of his having objected to the use of a truss, but the only circumstance which seemed to explain the matter, was an impression which appeared to be strongly entertained by the patient—namely, that his right testis had always ascended with the gut into the ring, and remained there. If such a circum-

stance had occurred, it would perhaps constitute a valid objection to the use of a truss; but I satisfied myself that, on this occasion, both testes, although remarkably small, particularly the right, were in the scrotum, and consequently, that no such objection existed against wearing so necessary an instrument.

AN
ANALYTICAL CORRECTION
OF
SIR CHARLES BELL'S VIEWS
RESPECTING
THE NERVES OF THE FACE.

ANALYTICAL CORRECTION,

&c. &c.

THAT part of Sir Charles Bell's work in which he investigates the respective functions of the two orders of nerves distributed to the face, is obviously of the utmost importance to the establishment of his splendid views of the nervous system ; for he selects the branches of these nerves as best calculated to confirm the brilliant results of his experiments on the roots of the spinal nerves. But as he appears to have fallen into an important error on a point intimately connected with this portion of the subject, and to have left another point in a state of the greatest doubt and obscurity, it becomes necessary to point out and correct these imperfections in a system, which is likely to exert so powerful and extensive an influence over the pathology and treatment of disease. Such, therefore, are the objects of the following analysis.

Arguing from the anatomy of the fifth and

portio dura of the seventh pair of nerves,—from the results of experiments on the roots of these nerves, and on their branches as they appear on the face,—and from the effects of injury or disease of these nerves, Sir Charles Bell arrives at the following conclusions,—viz. that “the sensibility of the head and face depends on the fifth pair of nerves;—that the muscular branches of the fifth are for mastication;—and that the portio dura of the seventh, or respiratory nerve of the face, controls the motions of the features, performing all those motions, voluntary or involuntary, which are necessarily connected with respiration;—such as breathing, sucking, swallowing, and speaking, with all the varieties of expression.”* But it appears to me that these conclusions are only correct to the following extent. By showing that the anterior or motor root of the fifth pair of nerves does not, while situated within the cranium, send any branch either to the ophthalmic or to the superior maxillary divisions of the posterior or sensific root of the same nerve, he has clearly proved that the supra-orbital and superior maxillary are exclusively nerves of sensation, and in no way connected with the motion or expression of the face; with the exception of an instance in which he explains the results so as

* The Nervous System of the Human Body, by Charles Bell, F.R.S., p. 96, Lond. 1830.

to make them appear extremely equivocal, his experiments on the branches of these nerves are as confirmatory of the anatomical evidence of the same fact, as the intimate connexion between these branches and those of the portio dura can possibly admit ; and no proofs can be more conclusive on the point than those which he has drawn from pathology. Following up the same original and powerful mode of illustration, he has also succeeded, in showing that the motor portion of the fifth nerve controls the motions of the lower jaw, and that the portio dura of the seventh pair of nerves is the respiratory nerve of the face, and controls the motions of the features. Thus far his conclusions are unquestionable, but I undertake to prove, in the fairest and clearest manner, that he has been betrayed into an erroneous opinion, in considering that the motor portion of the fifth is merely a masticatory or manducatory nerve, or that the portio dura of the seventh is exclusively the nerve which controls the motion and expression of the face.

Previous to entering on this undertaking, however, it will be necessary that the reader should carefully bear in mind the following facts respecting the inferior maxillary nerve ; in order that he may see how far its anatomy has been strictly attended to by Sir Charles Bell, and supports him in the opinion in question ; for, according as the consideration of the subject is proceeded with, it will become gradually more and more evident,

that the point at issue cannot be satisfactorily decided by any experiment made on the branches of these nerves; and that it can only be determined by a careful survey of the minute anatomy of these parts, and the phenomena which they exhibit under injury or disease. The following are the anatomical points which should be borne in mind.

First, it should be recollected that the whole of the anterior or motor root of the fifth nerve, and the third division of the posterior or sensific root of the same pair, pass through the foramen ovale of the sphenoid bone; that when they reach the zygomatic fossa, they become inseparably united, and form the inferior maxillary nerve; and that Sir Charles admits, "that the filaments of both portions of the nerve are here so complexly and intimately combined, that all the branches which go off after this union are compound nerves, and have motor filaments in their composition." *

Secondly, it should be recollected that immediately after this intimate union takes place, the nerve sends branches to anastomose with the portio dura in the substance of the parotid gland, and at different parts of the face; branches to the temporal, masseter, pterygoid, buccinator, mylohyoid, genio-hyoid, and digastric muscles, which are those engaged in mastication and deglutition;

* The Nervous System of the Human Body, p. 101.

branches to the depressor anguli oris, the depressor labii inferioris, the levator labii inferioris, the orbicularis oris, and the levator labiorum communis.

Thirdly, it should be recollected that after this intimate union of its motific and sensific portions has taken place, the inferior maxillary nerve sends off a branch, the temporo-auricular, which emerges from the parotid, mounts over the zygoma, immediately divides into several branches, which attach themselves to the superior or temporo-facial branch of the portio dura, and, by frequent communication, form with it a sort of plexus, which is distributed to the orbicularis palpebrarum, occipito-frontalis, and corrugator supercilii muscles, and anastomoses freely with the branches of the frontal or supra-orbital nerve.*

It appears, then, from viewing the anatomy of the inferior maxillary nerve in this close and natural way, first, that all its branches are compound, and contain motor filaments ; secondly, that its branches, in addition to supplying the

* I am particular in describing this branch of the inferior maxillary nerve, because it will be found that Mr. Bell has omitted either to mention it in his description, or to give it due consideration in his experiments, or in his explanations of pathological facts. It is very imperfectly represented in the plates of Scarpa and Cloquet. The most accurate representation of it that I have seen, will be found in part the first, plate the first, of Professor Seerig's "Colossal Illustrations of Human Anatomy." But it requires no great nicety of dissection to show that the above description is perfectly correct.

muscles engaged in mastication and deglutition, not only anastomose and communicate frequently with the portio dura which is distributed to the face, but supply the muscles which act on the lips, the angles of the mouth, the eyelids, the eyebrows, and the forehead, parts upon which the expression of the face in a great measure depends. Such being the real state of the facts, and seeing that all these motor filaments proceed from a nerve of voluntary motion, it seems impossible to come to any other conclusion than this, that the motor root of the fifth pair controls not only all the motions of mastication, but also all the voluntary motions of the features, and, of course, all the varieties of expression which the countenance is known to be capable of exhibiting under the influence of the will. Thus anatomy alone would prove that the motor portion of the fifth cannot be merely the nerve for mastication, nor the portio dura of the seventh exclusively the nerve for the motion and expression of the face.

Comparative anatomy would also seem to show that the motor portion of the fifth pair must have some control over the motions and expression of the face; for, in the monkey, the only animal whose features bear a resemblance to those of man, and an animal in which, from the incessant activity and grimace of his features, the portio dura should, to be in unison with Sir Charles Bell's view of the matter, be of particularly large size, we find that the inferior

maxillary branch of the fifth nerve is remarkably large, and the portio dura comparatively very small.

But it is obvious, that before this view of the point can be considered to be fully and fairly established, it should be shown that, so far from being overturned, it is confirmed by the very experiments and facts which Sir Charles has brought forward in support of a different view of the subject. Accordingly, bold and impracticable as the attempt may appear, I shall now endeavour to prove that this is actually the case.

EXPERIMENT 1. “An ass being thrown, and its nostrils confined for a few seconds, so as to make it pant, and forcibly dilate the nostrils at each inspiration, the portio dura was divided on one side of the head; the motion of the nostril of the same side instantly ceased, while the other nostril continued to expand and contract in unison with the motions of the chest. On the division of the nerve, the animal gave no sign of pain; there was no sign of struggle nor effort made when it was cut across. The animal being untied, and corn and hay given to him, he ate without the slightest impediment.”*

The words “side of the head” here used, are so indeterminate as to leave us in doubt of the

* An Exposition of the Natural System of the Nerves, &c., pp. 105-6, Lond. 1824.

particular branches of the portio dura which were divided in this experiment ; but the circumstance of the nostril of the same side being, and the eyelids of the same side not being paralysed, removes this doubt, and shows that the branches which were divided must have been the malar and buccal, and not those of the temporo-facial or cervico-facial. This point being settled, a remarkable feature of the experiment, yet one which Sir Charles has omitted to notice or explain, attracts attention. It is this. We find that after the division of those branches of the portio dura which go to the lips, corn and hay were given to him, and that “he ate without the slightest impediment ;” in other words, that he not only chewed but picked up his food as usual. How, let me ask, is such an occurrence to be reconciled with the opinion that all the motions of the face, voluntary and involuntary, are exclusively controlled by the portio dura? That the animal should chew as usual, is but what might naturally be expected, seeing that the masticatory branches of the fifth were here quite out of the way of and untouched by the knife. But that he should, under such circumstances, retain the full power of picking up his food, is a fact altogether inconsistent with the supposed exclusive control of the portio dura over the lips ; and leads directly to the opinion, that these features possess an independent power of moving, derived from the numerous motor branches which they receive from the fifth nerve.

In a note to this experiment, he says, "the unwillingness to make more experiments than appeared necessary to warrant the conclusion which I wished to force attention to—viz., the difference of the fifth and the portio dura of the seventh, prevented me, for a time, from seeing the full importance of this nerve. Had the same nerve of the opposite side been cut, the motion would have been obviously defective." But if the division of the nerve on one side did not in the least impair the prehensile power of the lips, it is by no means obvious why its division on both sides should render their motion defective. On the contrary, this circumstance, together with the strong facts which have been, and remain to be adduced in favour of these organs possessing a motor power independent of this nerve, makes it highly probable that the effect would be precisely the same. It is to be regretted, therefore, that he did not divide the nerve on the opposite side, as his doing so would, in all likelihood, have led him at once to the true state of the facts.

In concluding my remarks on this experiment, I cannot avoid noticing, that in the account which he gives of it in his large work, he omits mentioning the circumstance of the animal having eat without impediment after the division of the nerve. By this remark I do not in the most remote way mean to insinuate that he intended to suppress the fact, but merely to show

the little importance he attached to it. The omission is evidently one of inadvertence.

EXPERIMENT 2d. "On cutting the respiratory nerve on one side of the face of a monkey, the very peculiar activity of his features on that side ceased altogether. The timid motions of his eyelids and eyebrows were lost, and he could not wink on that side; and his lips were drawn to the other side; like a paralytic drunkard, whenever he showed his teeth in rage."*

The loss of motion which the eyelids and eyebrows suffered in this experiment, is attributed by Sir Charles exclusively to the section of the superior or temporo-facial branch of the portio dura. But this is obviously an error arising from an anatomical oversight, for it is quite impossible, so intimate is their connexion and so frequent their anastomosis, to divide this branch without also dividing the compound branches of the temporo-auricular branch of the fifth pair, a circumstance which he has omitted to take into consideration, and which must be admitted to have had some share in causing the loss of motion in these features. This experiment is, therefore, inconclusive on the point, and favours neither one view nor the other. But it will be found that the independent power of the eyebrows and eyelids, which cannot, it now appears, be proved by

* Exposition of the Natural System, &c. p. 113.

any experiment, can be satisfactorily established by pathological facts.

EXPERIMENT 3. "The respiratory nerve being cut across in a terrier, the side of the face was deprived of all expression, whether he was made to crouch, or to face an opponent and snarl. When another dog was brought near, and he began to snarl and expose his teeth, the face, which was balanced before, became twisted to one side, to that side where the nerve was entire; and the eyelids being, in this state of excitement, very differently affected, presented a sinister and ludicrous expression." *

For the reason assigned in commenting on the last experiment, the state of the eyelid alluded to in this, may be as fairly attributed to the division of the temporo-auricular branch of the fifth, as to that of the temporo-facial branch of the seventh pair; and, consequently, affords but the same neutral, yet useful, kind of evidence. But the circumstance of the animal retaining the power of snarling and exposing his teeth, after the portio dura had been cut across, is of a different description; it presents another proof that the lips possess a motor power independent of the seventh pair.

If I am not greatly deceived, I have succeeded in proving that the result of these experiments are either strongly in favour of the view which I

* Exposition of the Natural System, &c. p. 125.

have taken of this point, or, which is of manifest importance, so decidedly imperfect and neutral in their nature as to afford no solid support to one opinion or the other.

It only remains to review the pathological facts which Sir Charles depends upon for the support of this part of his system, and to see what evidence they afford upon the point in question. It cannot be expected, however, that I should do more than select from his numerous and detailed cases, a number sufficient for this purpose. This I shall now do in as fair and impartial a manner as possible.

CASE 1. "I have found in an individual," says he "that when the cheeks and lips were twisted by paralysis, he possessed the power of holding with his lips, in a manner that indicated a power independent of the seventh."*

This fact is strongly in favour of the present view; and must have raised considerable doubt in his mind, for he introduces it by admitting, that he is "unable to decide whether or not the muscular branches of the fifth nerve, go exclusively to the muscles of the jaws." It is clear that his indecision as to this point, arose from forgetting that *all* the branches of the inferior maxillary are compound, and contain motor filaments, for if he had recollected the fact, the distribution of the

* Exposition of the Natural System, &c., p. 123.

nerve would have at once pointed out the source of that power which the lips possessed in the case before us.

CASE 2. "In the case of a little girl, the consequence of disease of the right portio dura is very striking. When she laughs heartily, the right cheek and the same side of the mouth are unmoved, while the muscles of the left side are convulsed with laughter.

"If told to laugh with the right side, she raises the angle of the mouth, but by an action which is evidently regulated by the fifth pair. This attempt to laugh gives a peculiar droll expression to her face."*

This case is extracted from a paper on the subject by the late Mr. John Shaw, a gentleman in whom the profession has suffered a severe loss, and we perceive that he considered the power which the girl had of raising the right angle of the mouth to be regulated by the fifth pair. This opinion coincides with that which anatomy, and the circumstances of the case would lead us to form. But Sir Charles undertakes to explain the fact very differently. "Before," he says, "we decide on this matter, we must determine whether or not even the portio dura of the seventh nerve may not lose one faculty and retain another. I suspect that the influence of passion, as this of

* Exposition of the Natural System, &c., p. 123-4.

smiling or laughing, is lost in consequence of affections that do not destroy the entire power of the nerve. I have observed in one patient the motions of the eyelids lost, while those of the cheek remained; in another the motions of the cheek lost, while those of the eyelids were entire. These symptoms still tend to show that one function of the portio dura may be lost without the other." Now, let me ask, what is this other faculty or function which he is here constrained to attribute to this nerve? If it possess more than one, it must be that which it enjoys in virtue of the branches of the fifth nerve which anastomose and incorporate with the portio dura; and if it be this that was retained, the argument is still in favour of Mr. Shaw's view of the matter. As to the facts he adverts to, in order to show that the portio dura may lose one and retain another function, they neither prove the point, nor countenance the idea that the nerve possesses two faculties, but merely show that an injury of a portion of the nerve will not affect any parts but those to which that portion may be distributed. In short, this explanation is too obscure, and too purely notional to supersede the clear and natural view of the case taken by Mr. Shaw.

CASE 3. "I divided," says Sir Charles, "the branch of the fifth pair, which goes to the forehead, in a man, at his urgent request, on account of tic douloureux: there followed no paralysis of the muscles of the eyebrow; but in an individual

where an ulcer and abscess seated anterior to the tube of the ear affected the superior branch of the respiratory nerve, the eyelid fell low, and did not follow the other when the features were animated by discourse or emotion.” *

In this paragraph, two cases perfectly distinct from each other, are contrasted for the obvious purpose of proving, that, as the division of the frontal nerve did not in the least affect the motions of the eyebrow, and as an ulcer and abscess seated before the ear caused the eyebrow to fall, and cease to act in concert with its fellow, it necessarily followed that the superior branch of the portio dura exclusively controlled the motions of this expressive feature of the face. But it is quite manifest that the distinguished author, in bringing forward this kind of proof, has altogether lost sight of the fact, that “an ulcer and abscess seated anterior to the tube of the ear,” and which “affected the superior branch of the respiratory nerve,” must have also affected the temporo-auricular branch of the inferior maxillary nerve, and thereby deprived this feature of all power of moving. Hence, these cases cannot be said to supply any thing like satisfactory and unequivocal proof of the fact, which they were meant to establish.

CASE 4. “An unfortunate man was brought

* Exposition of the Natural System, &c., p. 118.

into the hospital who had put a pistol loaded with small shot to his right ear. It tore off the ear and opened a ragged wound behind the upright part of his jaw ; dissection afterwards showed that the branches of the portio dura, or respiratory nerve of the face, which go to the cheek, and nose and mouth, were destroyed, the branches ascending to the eyelids were left entire. The shot had entered by the meatus externus, and had broken up the thin portion of the bone betwixt the tympanum and cavity of the skull. Notwithstanding the shot was found sticking in the dura mater, under the projection of the wing of the sphenoid bone, the divisions of the fifth nerve were entire and unhurt. Why, we may ask, may not such a wound be taken as an experiment? If it be rudely made, yet we have the advantage of human testimony. The report during life has this passage : “There is no want of sensibility in the face, or lips, or tongue ; but he cannot draw his mouth to the right side, though he can to the left.”—“The motion of the right eyelid is entire.” *

This case certainly illustrates the difference between the functions of the portio dura and those of either the frontal or superior maxillary nerves, much more satisfactorily than any experiment ; and so far it answers one of the objects for which it was introduced. But it fails in illustrating another

* Exposition of the Natural System, &c., pp. 119-20.

point which it was intended to establish—namely, that the motion of the corresponding eyelid remaining entire, was owing to the accidental circumstance of the branches of the portio dura ascending to the eyelids having escaped injury ; for it appears that the branches which the inferior maxillary nerve sends to the same part also remained unhurt. Independently, however, of this objection, the validity of which must be admitted, I am strongly disposed to view the facts bearing on the point in another and a very different light. It is this. To every one in the least conversant with the anatomy of the parts, it must appear unaccountable how, as in this case, a charge of small shot fired directly into the meatus externus of the ear, and taking the particular direction described, could have failed to destroy the portio dura at some point of its course through the aqueduct of Fallopius, and thus abolish the motor power of each and every one of its branches. Yet, nothing can be more obvious, than that Sir Charles neither made, nor entertained an idea of the necessity of making, an examination into the state of the nerve within the temporal bone. Are we, under such circumstances, justified in neglecting to reason upon so strong a probability ? On the contrary, until such time as this distinguished physiologist and surgeon is enabled to add that he examined this portion of the nerve, and found it untouched, I consider that every thing justifies me in concluding that, in this

case, the motions of the eyelids were exclusively maintained and performed by the temporo-auricular branches of the inferior maxillary nerve, and would have altogether ceased, if it were not for their agency.

CASE 5. "Daniel Quick, æt. 70. Twelve years ago his face was 'all right;' but he said, pointing to a scar in the angle of the jaw on the left side, ever since he received a wound in that part, from being tossed by a bullock, his face has been in the same condition in which it now is. The horn of the animal had entered his neck just below the ear; he was lifted from the ground, and when he fell, the blood gushed out, according to his expression, 'as when a sheep is stuck.' A surgeon sewed up the wound, and 'made a capital cure of it.'

"The left side of his face forms a remarkable contrast with the other. Upon the forehead the skin lies flat and smooth, there being no wrinkles as on the right side; and when he frowns, the left eyebrow moves only a little, by the action of the muscles on the right side dragging it towards them. The eye remains permanently open: there are none of the common winking motions, and when he is asked to close the eye forcibly, although he makes the attempt, there is not the slightest motion observed in the eyelids. The lower eyelid hangs down considerably, so that the conjunctiva is much exposed; and there is a fulness in its vessels, apparently consequent on re-

peated attacks of inflammation. This eye has been the source of great distress to him, especially during the summer season, owing to the dust and brightness of the sun both injuring it. His wife, he said, has told him that he never closes this left eye, not even when he is asleep. In the repeated attempts which he made, although the eyelids did not move, it was always observed that the cornea was tilted upwards, so as to be completely concealed behind the upper eyelid. * * * * *

The muscles of the cheek on the left side are wasted, and there appears to remain nothing but the thin integuments, which hang upon the side of the face, as if dead, without having any action in them, or wrinkles, as in the right cheek; and when he speaks, this cheek is alternately puffed out and then collapsed, the air first distending it, as it were a bag, and then escaping at the angle of the mouth.

“The left nostril lies flat, and is not at all distended, while he draws a deep breath, or makes the motion of sniffing up. His whole mouth is drawn to the right side, thus producing most remarkable distortion of the face. Whatever action there is in the mouth is altogether owing to the contraction of the muscles on the right side of it; the left angle hangs loose, and is quite passive; and the saliva is allowed to flow constantly out upon the lower lip on this side.

“In regard to sensation, that is wanting only in the integuments over the cicatrix, and a little

way above it, just before the ear. Otherwise, in all the parts of the head and face, it is quite perfect.” *

In this case, he attributes the paralytic state of all the features on the injured side exclusively to the tearing across of the portio dura. But the circumstances, so far from sustaining, are rather opposed to this opinion. He did not see the wound at the time it was inflicted, or for nearly twelve years after it had been perfectly cicatrized, and consequently he could form no correct idea either of its original depth or extent. He had no opportunity of ascertaining what he asserts by dissection, for the man was otherwise in good health at the time his case was reported. He had no means, therefore, of arriving at any thing like a positive knowledge of the fact. And in assuming it, he obviously forgets, that the horn of a bullock entering the neck below the ear, coming out before the ear, and going so deep that the parts did not (as he mentions in his observations on the case) give way until the animal had lifted the man off the ground, must have ploughed up the parotid gland, and torn across, not merely the portio dura, but also many of the anastomosing and other branches of the inferior maxillary nerve, particularly the temporo auricular, which lie embedded in the substance of this gland.

* The Nervous System of the Human Body.—App. p. vii.

CASE 6. "J. Richardson, October, 1820. On first looking at this man, there does not appear to be any thing unusual in the state of his face ; but the moment he speaks or smiles, the mouth is drawn to the left side. When he laughs, the distortion is increased ; and when he sneezes, the difference between the two sides is quite extraordinary.

"On holding ammonia to his nose, it was observed that he could not inhale freely with the right nostril ; and, on examining the state of the muscles, when the act of sneezing was excited by the ammonia snuffed up by the left nostril, it was found, that not only those of the right side of the nose and mouth, but also of the eyelids, were passive, while all the muscles of the left side were in full action. When he blew, or attempted to whistle, the air escaped by the right angle of the mouth, the right buccinator, not at all corresponding in action with the muscle of the left side, nor with that of the muscles of the chest and neck, by which the air was expelled. The sensibility of the paralysed cheek was equal to that of the other side, and he could close his jaws with equal force on both sides.

"The early history of the case, according to the account given by the patient's friends, was this :—

"He was seized with a severe pain under the ear, and in a short time became so delirious, and his face so distorted, that the people in whose

house he lodged, supposing him to be mad from brain fever, carried him to the parish work-house. There he lay until his friends discovered him, and brought him into the hospital. It was then found, that the frenzy which had led the people of the lodging-house to suppose that he was mad, was only a high state of delirium, in consequence of a severe attack of cynanche parotidea ; indeed, the inflammation had run so high, that an abscess formed and burst under the ear. When the swelling subsided the degree of paralysis was very observable.

“ The delirium and the paralysis of the face naturally led the medical gentleman, who first saw this patient, to suppose that the symptoms were caused by an affection of the brain. Luckily, the treatment generally followed in cases of phrenitis, was best adapted for the particular affection which had caused both the delirium and the paralysis. The portio dura being engaged in the inflammation under the ear, was the true cause of the paralysis.” *

I admit that the paralysis which this man's face exhibited, arose exclusively from “ the portio dura being engaged in the inflammation under the ear ;” yet I do not admit the fact merely on the grounds upon which it is maintained by Sir Charles, but, as I shall now show, upon legitimate induc-

* Exposition of the Natural System, &c., pp. 143-6.

tion from a feature of the case which appears to have eluded his observation, and which tends to confirm the view for which I contend. It is this. We see that the paralysis showed itself in the acts of speaking, smiling, laughing, sneezing, blowing, and whistling, and that it did not show itself, and that there was nothing unusual in the countenance while it was in a state of repose ; and the question immediately arises, is such an occurrence reconcilable with Sir Charles Bell's doctrine? Certainly not; for nothing can be clearer than this, either that the doctrine which attributes to the portio dura an exclusive control over the motions of the face, must be false, or that injury or disease of this nerve on one side, must produce permanent paralysis of all the features of that side. Here, then, is a doctrine directly at variance with a fact, and we are placed in the dilemma of being obliged to reject either the one or the other. But, as it must ever be our safest and most certain course, in such instances, to make the former bend and accommodate itself to the latter, I see no reason why this feature of the case should not add considerably to the force of the facts and reasoning already advanced, and compel us to admit that the circumstance of the countenance maintaining its usual appearance while in a state of repose, was here owing to the agency of the motor branches of the fifth nerve ; particularly as there appears to be no ground whatever for supposing that any of these branches were engaged in the

inflammation under the ear. Besides, this mode of considering the matter has the merit of affording the following simple and natural explanation of all the phenomena of the case. Thus, when the countenance was in a state of repose, the *portio dura* was placed in the same state of inactivity on both sides ; on the sound side from not being called into action, on the unsound side from having lost all power of acting. Hence, although there was an actual loss of power, no such loss was manifested, the motor branches of the fifth pair of both sides having served to antagonize each other and balance the face. But the moment an attempt was made to speak, smile, laugh, or perform any other act connected with respiration, the sound *portio dura* was called into action, no longer stood in the same but an opposite relation to its fellow, and consequently paralysis and distortion of the face ensued.

CASE 7. "J. Cooper. This man's general appearance is completely that of an old paralytic, but the distortion of his face is more remarkable than usual, in consequence of the right or paralyzed side being marked with a red blotch.

"The arm and leg of the same side are nearly powerless, his intellects are much impaired, and his memory gone. The history of his case was given very clearly by his wife ; according to her account, her husband was, for the first time, attacked with apoplexy about seven years ago ; from this attack he gradually recovered, but at the end

of twelve months he was a second time seized, and, since that period, he has had two distinct attacks every year ; for the last two or three years he has been nearly in the same condition as at present.

“ STATE OF THE CHEEKS AND MOUTH.—When he is made to laugh, the right cheek rises in the same degree with the left ; when he blows (he always bursts into a laugh when asked to whistle,) the buccinator of the right cheek is in as much action as on the other side. When his nose is irritated by snuffing ammonia, the actions of the muscles, preparatory to sneezing, are equal on both sides of the face. These phenomena prove that the muscles of both cheeks are perfect in their actions as far as they are regulated by the respiratory nerve ; they stand in contrast with the state of the same muscles in the cases related, pages 143 and 146, (the last case which has been reviewed here, and another similar,) when the act of sneezing was excited.

“ The next inquiry, related to the influence of the branches of the fifth pair of nerves.

“ The right cheek, and the right side of the mouth, fall lower than the left. When a piece of bread was put between the teeth and right cheek, the patient could not push it from its place, but was obliged to pick it out with his tongue. The saliva constantly flows from the right side of his mouth, and when drinking, part of the fluid escapes from the same side. The

loss of the sensibility of the orbicularis oris was farther shown by the inability to hold a pencil, or a tobacco-pipe, in the right side of his mouth.

“The comparative degree of sensibility in the two cheeks was next examined; when he was pricked on the right cheek with a needle he seemed perfectly insensible, even though I drew blood, but on giving the least prick to the left side, he immediately started; the same difference in the degree of sensibility was observable in pulling a hair from each whisker (the sensibility of the right and left limb corresponded with that of the cheeks.)

“On putting hartshorn to the right nostril he inhaled it as well as with the left, and immediately all the symptoms observable in a person about to sneeze were presented.* As the nose was turned up, and the alæ nasi of both sides were equally in action, this was a sufficient proof of the state of the paralysed side being here very different from the condition described in the foregoing cases. The power of the fifth over the nose was tried: by tickling the inside of the right nostril no effect was produced; but on tickling the left nostril the symptoms of sneezing were again evident.

* “The apparent sensibility of the nostril over which the fifth had lost its influence may be explained, by supposing that the fumes of the ammonia passed by the posterior nares to the other nostril, and thus caused sneezing.”

“The motion of the eye was perfect. He could close the eyelid of the paralysed side as well as the other; and when his nose was irritated by the hartshorn, or when he laughed, the orbicularis oculi and corrugator supercilii were in complete action, so that there was not here that heaviness in the expression of the upper part of the face, which is so remarkable in paralytic persons. Here, then, was proof that those actions of the eyebrows which we find to be deficient, when the portio dura is affected, are, in a case of common palsy, left entire; indeed we may have daily opportunities, while walking in the streets, of observing that patients with palsy of one side of the body, have no difficulty in closing the eyelids.”*

The manner in which he has here arranged and commented upon the phenomena of this common case of hemiplegia, is admirably calculated to exhibit the decided difference, as far as sensation is concerned, between the functions of the fifth and those of the portio dura of the seventh pair of nerves. But I am either exceedingly deceived, or he has fallen into a grave error respecting the motor functions of both nerves, in consequence of having overlooked the direct and forcible application of the following fact, which he himself has so fully demonstrated in this very case; viz. that, in this instance, the portio dura

* Exposition of the Natural System, &c., pp. 156-161.

was not in the least engaged or affected ; and that the only nerves which were affected, were the fifth pair and all the other regular nerves of motion of the side affected. Such being the fact, nothing can possibly be more manifest or incontrovertible than this—namely, that, if the fifth nerve really possessed no control over the motions of the face, there should be none of that evident loss of motion and great distortion which is invariably seen in the countenance of a hemiplegic patient, whenever it is in a state of repose, and not disturbed by such acts as call the motor power of the portio dura into operation. But, without recurring to the influence which preconceived opinions may have exerted, it will not be difficult to explain how so obvious a truth escaped so acute and practised an observer, when we refer to his account of the case, and perceive that he barely touches slightly and scatteredly upon the condition of the countenance in a state of repose, the only state, be it observed, in which the action of the fifth nerve can be seen ; and that he directs all his attention and observations to its condition in the acts of laughing, blowing, and sneezing ; acts in which the respiratory nerves of the face are in full play, and, by restoring the balance of the features, effectually prevent the action of the fifth from being seen.

This manner of looking at the case, is obviously too partial to be fair, or to lead to sound views. Had he pursued a different course, it is

more than likely that he would have arrived at a different conclusion. He would have then seen the mouth twisted to the sound side, the cheeks and lips flabby and hanging lower, and the eyebrow heavier and less animated on the paralysed than on the sound side : and, seeing all this, it may be presumed that he would have argued the matter with himself thus ; this distortion cannot be caused by the portio dura of either side, for I have just demonstrated that they are both perfectly sound and unaffected in this disease, and neither of them is at this moment in active operation ; it can only be caused by the motor branches which the fifth nerve sends to the sound side of the face, and these branches must possess over the motion and expression of the features a control independent of that which the portio dura exercises. If not the precise language, such at least seems to be the train of reasoning which would naturally suggest itself to the mind, in endeavouring to illustrate the source of the motion and expression of the face by such a case as this.

In short, if I were to select a case which would establish my view of the point a tissue more fully than another, I would select one of hemiplegia.

Nothing can be fairer than the manner in which the foregoing cases have been selected, for they are given almost in the order that Sir Charles gives them, and so as to furnish close copies

of such of all his other cases as bear upon the contested point. But their evidence, strongly as it is in favour of my view of the point, would be incomplete without the following case, which he translates and gives, in an abridged form, from the interesting work of M. Descot on the local affections of nerves.

Case 8. "A phthisical patient had a suppurating tumour on the parotid gland, which exposed the mastoid portion of the digastric muscle. Paralysis of the face came on gradually, and at length the following symptoms presented.

"The eyeball was perfectly under the control of its muscles. The upper eyelid could be moved. The lower eyelid was relaxed and everted. The eye was constantly weeping.

"The nose was dragged to the left side; the nostril of this side remained narrow, while that of the other was dilated by the action of its muscles. The mouth was dragged to the left side. The tongue was perfectly free in its movements.

"When she laughed or spoke, the expression was most strange. On the right side, her face was as that of a dead person, while the left was highly excited. In speaking we could see the buccinator puffed out and relaxed alternately, like the leather of a pair of bellows.

"Whilst sleeping, the upper eyelid covered the pupil, while the lower eyelid was depressed and everted. Some hairs on her upper lip were

pulled, which awoke her, and made her complain of being teased.

“ At her death, respiration was convulsive. The eyeballs rolled in their sockets : the muscles of the left side of her face contracted with force, while those of the right side remained still ; and the mouth and nostrils being convulsively pulled towards the left side, a frightful expression of countenance was produced.

“ There is a minute account of the dissection given ; but it is sufficient to say, that a portion of the seventh nerve corresponding with the breadth of the ulcer, was destroyed ; the two ends of the nerve which were thus separated appeared as if teased out.

“ M. Descot, perfectly candid as to the source from which he takes these views, leaves me under an obligation to him.

“ He remarks that it is inexplicable how she continued to possess the motion of the upper eyelid. I would offer this observation. M. Descot having seen two extremities of the divided nerve, it must have been a branch or portion only which was here destroyed. For if the nerve had been destroyed as it makes its exit from the stylo-mastoid foramen, its course before it splits being very short, he might have seen one extremity coming out from the bone : he could not have seen the corresponding end of the nerve, but must have detected many branches. No doubt, therefore, the superior division of the *pes anserinus* had es-

caped the effect of the inflammation and ulceration. The branches of the portio dura which go along the temple to the upper eyelid, had remained entire: hence the action of the upper eyelid was perfect, whilst the lower eyelid, and all the rest of the face, were paralysed.” *

We have now before us this case, together with Sir Charles Bell's explanation of the cause of the eyelid of the paralysed side presenting its motion, under circumstances so contrary to what his view of the subject would lead us to expect. But a strict sense of justice, as well as the interests of the subject itself, compel me to assert that he has here altogether misrepresented the results of the post-mortem examination, in which, it should be observed, the great force or point of the case is centred; and that his explanation is founded upon a conjecture directly at variance with the facts stated in the original. That I may not, however, be accused of making such assertions lightly, or upon any but the very strongest grounds, I shall now insert here the account given by M. Descot of that part of the dissection which relates to the fifth and seventh nerves, in order not only to enable the reader to see precisely what these grounds are; but also to place before him all the important facts of this very interesting case, and

* The Nervous System of the Human Body—Appendix, p. lxxxii., see also Appendix to the Papers on the Nerves, by Charles Bell, p. 61-65. Lond. 1827.

to show the broad and steady light in which they place the matter in dispute.

“ En cherchant,” says M. Descot, “ à découvrir le tronc de la septième paire et ses premières divisions, on trouva.

1°. “ Au sommet de l’échancrure parotidienne le rameau auriculaire postérieur ; il rampait, comme à l’ordinaire, a la partie extérieur de l’apophyse mastoïdienne et derrière le pavillon de l’oreille ; *mais il ne fut pas possible de trouver son point d’insertion au tronc du nerf facial. Les autres divisions de ce nerf, telles que celles qui vont au digastrique et aux muscles de l’apophyse styloïde, n’étaient plus reconnaissables.*

2°. “ A l’extrémité inférieure de l’échancrure parotidienne, *on voyait le tronc du nerf facial qui était interrompu au niveau du bord antérieur du sterno-mastoïdien.*

3°. “ Au milieu des restes de la parotide qui se rencontraient au tiers inférieur de la face externe du masseter, je découvris le tronc du nerf facial ; son extrémité était comme effilée, et adhérait immédiatement au masseter. Il se divisait ensuite en deux branches, une inférieure et l’autre supérieure. Ces deux branches fournissaient les rameaux accoutumés, lesquels se rendaient sans interruption à la region temporale, aux paupières, aux ailes du nez, aux muscles de la region malariale et de la fosse canine, ainsi qu’a l’orbiculaire des lèvres. Nul d’entre eux n’avait souffert d’al-

tération, ils étaient d'une blancheur éclatante. Les muscles de la face n'étaient point atrophiés.

4°. “Les rameaux nerveux appartenant à la cinquième paire, et sortant, comme à l'ordinaire, par le trou sous-orbitaire, formaient leur plexus accoutumé dans la fosse canine et présentaient un état d'intégrité aussi parfait que celui des rameaux du nerf facial.

5°. “*Je disséquai la portion dure de la septième paire à travers le rocher ; elle se montra saine jusqu'à sa sortie par le trou stylo-mastoidien ; là commençait son interruption, de sorte qu'il manquait au nerf facial une portion de son tronc d'une longueur égale à la largeur de l'échancrure parotidienne.*”*

It is important to add, that M. Descot, in the course of his observations on the inexplicable nature of the case, makes use of the following words : “*L'autopsie cadaverique,*” says he, “*nous a permis d'observer une interruption dans la continuité du tronc du nerf, d'un pouce environ.*”†

What are the facts which we collect from this account, and how far are they correctly reported by Sir Charles? Let us see. The first of these paragraphs states, that the first branch which the portio dura gives off after escaping from the

* Dissertation sur les Affections Locales de Nerfs, par Pierre—Jules Descot, pp. 325-7.—A Paris, 1825.

† Ibidem, p. 327.

stylo-mastoid foramen, could not be traced as usual into its trunk, and that the two other branches which it gives off immediately afterwards, were no longer to be seen; the second paragraph states, that there was an interruption or breach of continuity in the trunk of the nerve on a level with the anterior edge of the sternomastoid muscle; the fifth, that the breach of continuity in the nerve commenced at the stylo-mastoid foramen, and was equal in length to the breadth of the ulcer or excavation; and, finally, we are informed that the interruption in the continuity of the trunk of the nerve was about an inch in length. Is the fact thus circumstantially related, and on which all the interest and importance of the case depend, correctly reported by Sir Charles? It is not. In the place of stating, as he was bound, in justice to the case and to its author, that a portion of the trunk or root of the seventh nerve, corresponding in length with the breadth of the ulcer, and about an inch long, was completely destroyed; he merely states, "that a portion of the seventh nerve, corresponding with the breadth of the ulcer, was destroyed." The difference between the two statements is obvious and most material. One conveys the main fact in a sufficiently brief, yet perfectly comprehensive and accurate manner; the other avoids the main fact, and leaves us in doubt of the exact situation and extent of the separation and loss of substance which the nerve exhibited.

But this is not all. He is equally incorrect in stating that “the *two ends* of the nerve which were thus separated appeared as if teased out ;” for it will only be necessary to turn to the third paragraph, the only part of the account where this appearance is mentioned, in order to see that but one of the ends was found in this condition, and that that one was not the posterior or mastoid, but the anterior or parotid extremity of the nerve, and which had been completely severed from its root.

Having fully exposed the objectionable manner in which he has treated the appearances on dissection, I now come to examine his explanation of the cause of the eyelid preserving a power of moving under such circumstances. The whole of his observations on the point come to this. He considers, first, that “it must have been a branch or portion only which was here destroyed ;” secondly, that “the superior division of the pes anserinus had escaped the effect of the inflammation and ulceration ;” and thirdly, that “the branches of the portio dura which go along the temple to the upper eyelid had remained entire.” Now, it is quite clear, that the first and the last of these suppositions, for they are nothing more, are advanced as the only means of avoiding an inference, which would otherwise overturn a favourite theory ; but it is surprising how one fact which he calls to his aid on this occasion, could ever have been employed as an argument in point,

for although it is true that "the superior division of the pes anserinus had escaped the effect of the inflammation and ulceration," it should have been recollected, that the breach in the trunk of the nerve, had effectually cut off this branch from all nervous influence, and reduced it to the same state in every respect as a dead branch. But to come at once to the point at which he evidently drives, is it, let me ask, consistent with reason to suppose, as he does, that this branch, which is only the fourth in order of those branches which the portio dura sends off, could have even the slenderest connexion with the common trunk, when we find that the three first branches which the nerve sends off, either could not be traced, in this instance, into the trunk, or had altogether disappeared by the process of ulceration? On the contrary, such a supposition is most unreasonable.

To pursue this line of observation would be perfectly needless. Nothing can be clearer than that the trunk of the portio dura was completely destroyed for nearly an inch in length, and that Sir Charles Bell's explanation of the cause of the eyelid preserving a power of moving, is wholly inadmissible. Another and a better explanation of the occurrence must, therefore, be supplied. For this purpose, it will be necessary to see whether or not the inferior maxillary division of the fifth nerve, particularly the temporo-auricular branch, had suffered from the ulcerative

process which destroyed the portio dura. Unfortunately, however, the only paragraph in the account of the dissection, the fourth, which mentions the state of the fifth nerve, merely notices that of its superior maxillary division. But the point may be ascertained with sufficient precision by observing the exact situation and space which the excavation or ulcer occupied, and which are thus accurately described by M. Descot, or rather by M. Billard, by whom the case is communicated. “L'échancrure parotidienne,” says he, “était très-profonde ; la plaie se trouvait au milieu d'un enfoncement borné antérieurement par la branche de la mâchoire inférieure, et postérieurement par le bord du sterno-mastoïdien. Cette place avait un demi-pouce de long sur quatre lignes de large.”* Here every anatomist will admit, that an ulcer like this, which was but half an inch long by four lines broad, and situated so inferiorly as to be bounded anteriorly by the ramus of the lower jaw, and posteriorly by the anterior border of the sterno-mastoid muscle, must have been much too far removed from the zygomatic fossa, in which the inferior maxillary nerve lies and divides, to have effected either the root or branches of this nerve. There is, at least, every probability that the temporo-auricular branch, which arises from the internal divisions of the nerve, remained uninjured and entire.

* Page 330.

Under all these circumstances, can we reasonably doubt, that the motion of the upper eyelid was, in this instance, maintained by means of the temporo-auricular branch of the fifth pair of nerves? I think not. In short, the whole case, cleared as it now is of all the obscurity which Sir Charles has contrived to throw over it, seems to me to be perfectly decisive of the correctness of the view for which I contend.

I have now, I think, succeeded in proving, from his own principles, experiments, and cases, that this distinguished author has fallen into an important error respecting the functions of the portio dura of the seventh, and the motor portion of the fifth pair of nerves. But it is indispensably necessary that I should relate a few cases which have come under my own observation, for they not only confirm the view that I have taken of the subject, but invest it with more enlarged and practical characters.

CASE 1. Michael Kelly, aged 36, residing at No. 2, Loftus-lane, admitted into the Richmond Surgical Hospital, under the care of Doctor M'Dowel, on the 12th of August, 1830, with ulcers on the scalp, phagedenic eruptions on the back and shoulders, and venereal hydro-sarcocele on the left side. On questioning him respecting the state of his face, he says that it became distorted about four years ago, in consequence, as he thinks, of exposure to cold while under the in-

fluence of mercury. Its present state is as follows. The face, when at rest, appears flatter and rather more wasted on the right than on the left side, and the left eye is much more uncovered and exposed than the right; but the mouth is not in the least distorted. The right eyebrow and eyelids possess their usual power of moving. The left eyebrow and lower eyelid are perfectly motionless, and the left upper eyelid has such limited power of acting, that he can scarcely half close the left eye. When he attempts to whistle, the mouth is drawn to the left side, and the whole expression is most ludicrous, and like that of a person mocking and making faces at another. The mouth is also twisted to the left when he speaks, smiles, or laughs. When he frowns, the right eyebrow and the right half of the forehead are thrown into the usual strong action, while the left eyebrow and the left half of the forehead remain perfectly unmoved. Anterior and very close to the left ear, there is a tolerably deep cicatrix, about an inch long and a quarter of an inch broad, left, he says, by an ulcer which he had there at the time the change took place in his countenance.

It is only necessary to add, that this man spoke distinctly; that he masticated and swallowed as usual; that he put out the tongue perfectly straight, when desired to do so; that he had not the slightest loss either of motion or sensation in any of the extremities; and, that he was dis-

charged cured of all his complaints, except the paralysis of the face, which resisted every means that could be employed.

There can be no doubt that this case was an example of partial paralysis arising from an affection of the portio dura of the right side ; yet we see that the patient possessed full power over the motions of the eyebrow and eyelids of that side, an occurrence which is as fatal to the doctrine in question, as it is confirmatory of mine.

The paralysed state in which the left side of the forehead, and the left eyebrow and eyelids, were found in this case, and which serves to complicate it somewhat, was evidently produced by the process of ulceration which had gone on anterior to the ear, and had injured the branches of the seventh and fifth nerves going to these parts. In this respect, the case reminds us strongly of the third case which I have quoted from Sir Charles Bell's work.

Case 2. Sarah Higgins, aged 40, admitted into the Richmond Surgical Hospital, on the 7th of April, 1832. She states that she received a wound, about a fortnight ago, in the right eyebrow, and that when it was nearly healed, she awoke in the morning with a degree of stiffness and difficulty of moving the jaw, and soon after perceived that her countenance was changed and distorted. She adds that she experienced no difficulty of deglutition ; and that, on the night before this occurrence, she had been sitting up

with a sick person for several hours, and so situated that the left side of her face was, during the whole of the time, exposed to a current of cold air. She has a small cicatrix on the forehead, extending through the right supercilium, and situated a little external to the point at which the frontal nerve passes out, but there is neither a cicatrix nor a tumour in the vicinity of the ears, and the following is the appearance and state of her countenance:—The right angle of the mouth is drawn, even when the lips are closed and all the features in perfect repose, to the right side; when she speaks, the lips play backwards and forwards horizontally; and when she attempts to whistle or blow, the air escapes from the left angle of the mouth; she has full power over the motions of the eyebrows and eyelids; sensibility is perfect in every part of the face, and in the cavities of the nostrils and mouth; the sense of taste is unimpaired; and the distortion is diminished, but not wholly removed in the act of speaking, smiling, or laughing. She can put out her tongue straightly, or in any direction she may be required. The right masseter is firmer to the feel than the left. She masticates and swallows as usual.

The history of this case clearly shows that the wound on the forehead and eyebrow had no connexion whatever with the peculiar appearance or state of the countenance, and that the distortion arose altogether from a paralytic affection of the left side of the face, produced by the action of

cold. These points being disposed of, the kind of distortion which existed, will be quite sufficient to point out the affected nerve ; for the circumstances of the face being distorted, even when in a state of repose, and its distortion not being removed during the acts of respiration, show that the portio dura was not affected, and consequently that the affection was confined to the motor portion of the fifth pair of nerves. The only fact which appears to militate against this opinion, is that of the patient having enjoyed the power of moving both eyebrows, but it should be recollected that these parts were still animated by the full influence of the portio dura.

CASE 3. Thomas Sallinger, aged sixty-seven, No. 2 Ward, House of Industry, states that, after ploughing on a cold, dry, and windy day in the month of March, 1831, he was attacked suddenly during the night with violent pain in a part of the occiput intermediate between the mastoid processes of the temporal bone ; and that he awoke the next morning with his mouth turned towards the right side, and total incapability of closing the left eye. He says that he had never used mercury, or had any illness before this attack ; that he never had a tumour, an abscess, or an ulcer near the ear ; and that he did not apply for medical aid after the attack. The following is the state and appearance of his face. The left half of the forehead is perfectly smooth and free from the wrinkles with which the right is marked. The left eye-

brow is quite motionless, and hangs lower and more heavily than the right, which has its usual power of moving, and preserves its ordinary curve. The left eye is uncovered, much inflamed, and the eyelids of that side have lost all power of moving. The left cheek is flabby and flat; the right plump and firm. The left angle of the mouth hangs lower than the right; and the mouth is drawn to the right side, even when he is silent, and the face in perfect repose, but still more when he speaks, smiles, or laughs. When he attempts to whistle, the left cheek is puffed up and distended with air, which escapes at the left angle of the month. He speaks, according to his own account, nearly as distinctly as he ever did; he puts out his tongue in a perfectly straight direction, and has full power over its motions. Sensibility is perfect on both sides of the head and face. Mastication and deglutition are performed as usual; and he has never had loss of either motion or sensation in any of the extremities.

Such was the state and appearance of his face on the 24th of September, 1831. The distortion is now, (27th of December, 1832,) although no other remedial means than those necessary for the state of his left eye have been employed, greatly diminished, and he has recovered nearly the full power of moving and closing the left eyelids; but the eyebrow of that side is quite motionless.

In this case, the fact of the distortion continu-

ing while the patient was silent, and his features were in a state of repose, shows that the motor portion of the fifth pair was affected ; and the fact of the acts of speaking, smiling or laughing, not removing or diminishing, but actually increasing the distortion, shows that the portio dura of the same side must also have been affected.

These three cases, although differing widely from each other, and each affording a different kind of evidence, strongly support the present view of the subject. There is, however, a feature common to all of them, which has not been commented upon, and which may be considered unfavourable to this view,—namely, the circumstance of the patients having enjoyed full power of masticating and swallowing. Anatomy satisfactorily explains why this power was enjoyed in the first case, where the portio dura alone was affected ; but that it should be retained in the second and third cases, where the branches of the motor portion of the fifth were affected, may appear inconsistent with the fact that these branches and those which supply the organs of mastication and deglutition, proceed from one and the same source. It should be recollected, however, that all these cases arose from exposure to cold, and that the superficial branches were the only ones which were exposed to the influence of this agent.

This last kind of evidence is of the most con-

vincing nature, and completes the chain of proofs and arguments by which I have attempted to illustrate the subject. It only remains, therefore, to come to the general conclusions at which I have endeavoured to arrive. They are these :—

First, That the motor portion of the fifth nerve controls all the voluntary, and the portio dura of the seventh nerve, all the involuntary motions of the face. This conclusion is strongly supported by every fact and by every observation which has come before us in the course of the present inquiry, and it recommends itself by having the double merit of more completely assimilating the distribution of the fifth nerve to that of all the other regular spinal nerves, and removing the inconsistency of assigning two directly opposite functions to one and the same nerve.

Secondly, That the face, instead of being subject to only one kind, is actually subject to three different and very distinguishable kinds of partial paralysis, viz.

Partial paralysis arising exclusively from an affection of the portio dura of the seventh nerve, and in which there is distortion of the face during the acts of speaking, laughing, and such others as are connected with respiration, but none when the person is silent, and his features are at rest.

Partial paralysis arising exclusively from an affection of the motor portion of the fifth nerve, and in which there is permanent distortion of

the face, but a diminution of the distortion during the respiratory acts or motions of that part.

Partial paralysis arising from an affection of both the portio dura of the seventh and the motor portion of the fifth nerve, and in which there is also permanent distortion of the face, but an increase of the distortion during the respiratory acts or motions of that part.

Thirdly. That there are not sufficient grounds for believing, as Mr. Hutchinson and others consider, that the portio dura is ever affected in neuralgia faciei spasmodica, or tic douloureux ; first, because the history of the disease shows that some portion of the fifth pair of nerves is always affected ;—secondly, because we know and have seen that the fifth and the portio dura of the seventh pair may be affected independently of each other ;—thirdly, because the severe pain and convulsive twitchings, so often felt in the course of the portio dura, cannot be received as unequivocal proofs of this nerve being affected, and may be much more reasonably explained, by considering them as resulting from an affection of the compound branches of the third division of the fifth, which incorporate with and follow the course of the portio dura.

Having asserted, in an early stage of this inquiry, that Sir Charles Bell has explained the results of one of his experiments on the fifth pair of

nerves in such a manner as to make them appear extremely equivocal ; and as the matter is in a certain degree connected with the subject just disposed of, it is incumbent upon me to point out the experiment, and to offer what appears to me to be a more correct explanation of that part of it which I consider to be misinterpreted. The following is the experiment to which I allude.

“ An ass being tied and thrown, the superior maxillary branch of the fifth nerve was exposed. Touching this nerve gave acute pain. It was divided, but no change took place in the motion of the nostril ; the cartilages continued to expand regularly in time with the other parts which combine in the act of respiration ; but *the side of the lip was observed to hang low, and it was dragged to the other side.* The same branch of the fifth was divided on the opposite side, and the animal let loose. *He could no longer pick up his corn ; the power of elevating and projecting the lip, as in gathering food, appeared lost.* To open the lips the animal pressed the mouth against the ground, and at length licked the oats from the ground with his tongue. *The loss of motion of the lips in eating was so obvious, that it was thought a useless cruelty to cut the other branches of the fifth.*” *

In a note to this case, he says, “ what I attributed to the effect of loss of motion by the division of the fifth, was, in fact, produced by loss of

* Exposition of the Natural System, &c., pp. 106-7.

sensation.” Before, however, I proceed to expose the erroneousness of this explanation of the fact, it may be well to quote and canvass the grounds upon which Mr. Herbert Mayo adopts and supports a similar view. “If,” says this author, “the facial branches of the fifth be not, as Mr. Bell supposed, nerves of motion as well as of sensation, how happens it that muscles, which they supply, cease to be of use on their division? The difficulty is more apparent than real; and is indeed completely removed upon referring to the history of cases of anæsthesia. In this disease, the sensation of the extremities is wholly lost, while their muscular power remains. Now it is remarkable, that in persons thus affected, the muscles of the insensible part can only be exerted efficiently, when another sense is employed to guide them, and to supply the place of that which has been lost. A person affected with anæsthesia is described, in a case quoted by Dr. Yelloley, in a very interesting memoir upon this disease, as liable “on turning her eyes aside to drop glasses, plates, &c., which she held in safety as long as she looked at them.” Instead, therefore, of being surprised that the animal in the experiment should cease to use its lips as before, when deprived of sensation, we could not, consistently with analogy expect any other result.” *

* Outlines of Human Physiology, by Herbert Mayo, F.R.S., pp. 334-5.—Lond. 1829.

The analogy so much relied on here, is clearly of the loosest and weakest description, for it is difficult to trace any resemblance between a disease in which sensation is lost and motion preserved entire, and the results of an experiment in which sensation is destroyed and motion prevented, but not, as it is supposed, destroyed. There is a wide difference also between a case in which the motions of the body require to be regulated by a nerve of sense, and another in which the divisions of a nerve of sensation prevents motion. But, even if circumstances admitted of its being made to appear close, it is not by analogy, a mode of reasoning which is rarely as perfect in medicine as in the mathematical sciences, and which is admissible only in cases where other and better evidence is either insufficient or not to be had, that we can explain results which require to be accounted for in the most direct and positive manner. Let us return, then, to the explanation which Sir Charles offers. He considers that "the loss of motion of the lips in eating" was not "the effect of the division of the fifth," but was "produced by loss of sensation." Now, granting that it was not the effect of the division of the fifth, although as yet the point remains to be cleared up, I deny that it was produced by loss of sensation, in other words, that the loss of motion was but apparent. The division of the nerve on one side of the face, destroyed sensation only in that side of the upper lip. The division of the nerve

on both sides of the face, destroyed sensation in the whole of the upper lip, but left it perfect and entire in the under lip, which is supplied by another division of the fifth, the inferior maxillary. At the time, therefore, that the nerve was divided on both sides, and that corn was placed before the animal, it appears that he could feel it perfectly well with the lower lip; it appears, also, that he tasted and licked it up with his tongue; and it does not appear that he was blind, and did not see it. Why, then, did he not pick it up as usual with his lips, but resort instinctively to an expedient for opening the lips, in order to enable him to act upon the corn with his tongue?—Simply because he had lost all power over the lips. It is quite impossible also to explain the circumstance of the lip hanging low and being dragged to the other side, after the division of the nerve on one side, upon Sir Charles Bell's principle, or, indeed, upon any other than that of actual loss of motion. Hence, the experiment, as is now stands explained, goes to prove, contrary to his doctrine and the positive evidence of anatomy, that the superior maxillary is a nerve of motion as well as of sensation. But the source of fallacy is very obvious. In the ass as well as in man, the nerve, as it escapes from the infra-orbital foramen, is so completely covered by the orbital head of the levator labii superioris alæque nasi muscle, that it would be impossible to completely expose and divide the

nerve without also dividing this head of the muscle ; and as it is from this head that the muscular fibres which intermix with those of the orbicularis oris proceed, it is easy to see that its division would have the effect of destroying motion in that part of the lip, and, by doing so, interrupt that continuity of action upon which the prehensile or orbicular motions of the lips depend. It is also evident that the division of this head of the muscle, by destroying the balance of the face, was the cause of the lip being dragged to the other side, until such time as the balance was restored by the division of the opposite nerve ; and it fully accounts for the lip hanging low on that side. Anatomy also explains why no change took place in the nostril, for it shows us that the other or nasal head of the muscle, which arises from the upper extremity of the nasal process of the superior maxilla, and is the only portion from which muscular fibres are sent to the ala of the nose, is separated from the orbital head by the angular vein and artery, and, in short, at such a distance as must have placed it out of the reach of the knife of such an accurate and expert anatomist, in exposing the superior maxillary nerve. Such appears to me to be the only principle upon which the loss of motion observed in this experiment, can be explained, and not by considering it, in any manner, as a consequence of the division of the nerve itself.

APPENDIX.

APPENDIX.

DYSENTERY having just reappeared in this city, I have had opportunities of trying my novel mode of treating the disease, and the following cases will show that it was attended with the most decided success, although no other means whatever had been employed.

CASE 1. Mary Ferguson, aged twenty-six, admitted into the Richmond Surgical Hospital, on Saturday, January the 5th, 1833. On the 26th of December last, she was exposed to cold, became wet in her feet, and, immediately after, was seized with rigors, pains and cramps in the belly, particularly about the umbilicus, and an incessant desire to go to stool, without passing any thing but blood and mucus, or, as she called it, jelly. From the 28th to the 30th, she passed no urine, and continued to suffer severely from tormina and tenesmus, and to pass nothing from her bowels but blood and mucus. She used no remedies, except one draught of castor oil, which gave her

no relief. The symptoms continued without intermission up to the date of her admission ; and the following is her state at present :—Her countenance is pale, and expressive of acute pain, her pulse 96, small and weak, her tongue white and furred, and her skin feels cold and dry ; she complains of disgust to food, nausea, pain on pressure over the abdomen, constant and severe tormina and tenesmus ; and she states that although she passes a small quantity of urine, she has passed nothing from her bowels but blood and mucus, since the attack, a period of eleven days.

At four o'clock in the afternoon, the gum elastic tube was passed up the rectum, but with some difficulty, and considerable pain to the patient, in consequence of her having a cluster of painful hemorrhoids round the verge of the anus, and a portion of the mucous membrane of the intestine being slightly prolapsed, and in an inflamed state. Some blood, which appeared to proceed from the piles, was discharged ; and, as soon as the tube reached the height of nine inches, a considerable quantity of flatus passed off, and gave her, she said, some relief. An injection composed of a pint of warm water, two ounces of olive oil, and an ounce of castor oil, was now thrown up by a syringe, and soon after returned mixed with a considerable quantity of blood, mucus, and balls of hardened feces, and accompanied by loud bursts of flatus. In a few minutes, she declared that she felt herself quite relieved, and free from all pain and un-

easiness. Ordered to take whey, tea, and barley water, *ad libitum*.

6th, 4 o'clock, P.M. Her pulse is now 90, full and soft, her tongue rather white, but very little furred; her countenance is still pale, but free from all expression of pain, and apparently natural; she has no longer any nausea, any disgust to food, or pain on pressure over the abdomen. She states that she slept well during the night, and that she has had no griping pains, or any desire to go to stool since her bowels were freed yesterday evening. She complains, however, of a sense of uneasiness commencing in the left iliac region. The tube passed up the rectum, but still with difficulty and pain, and an injection composed of three pints of warm water, two ounces of castor oil, and the same quantity of olive oil, thrown up, and quickly brought down a quantity of flatus and both solid and fluid feces, but no blood, and very little mucus. Says she feels quite well. Ordered to have the tube again introduced, and a quart of warm water to be thrown up, in the course of six hours.

7th, 2 o'clock, P.M. Has slept soundly during the night, and has had two natural looking stools since last report. Her pulse is now 80, full and soft, her tongue clean, and she says that she feels perfectly well. The tube passed, and an injection administered as yesterday.

9th, 9 o'clock, A.M. Has had four natural stools. Free from all complaint. Discharged.

This case was seen by Dr. Corrigan, and by several pupils.

CASE 2. Anne Wilson, aged thirty, nurse of ward No. 25, House of Industry, complains this day, January 8th, 1833, of loss of appetite, nausea, retching, griping pains in the abdomen, particularly around the umbilicus, and of frequent desire to go to stool, the calls to stool being followed by mucus tinged with blood, and occasionally with a few small scybala. Tongue white, pulse 120, and small; left iliac region tender under pressure. She states that she was seized, three days ago, with shivering, followed by tormina, tenesmus, and other symptoms which have been enumerated, and that her bowels had been constipated for nine days previous to the attack. The tube was immediately passed up the rectum, but with much less pain and difficulty than in the former case, and as soon as it reached the necessary height, an offensive smell indicated the escape of flatus from the intestines. An injection consisting of one quart of warm water, and two ounces of castor oil, was thrown up, but returned in a few minutes without any admixture of fecal matter. Considering that this circumstance indicated an accumulation of fecal matter in the cæcum, and not in the sigmoid flexure of the colon, and expecting that the evacuation of air from the whole of the colon, would cause the accumulated matter to be transferred from the former to the latter situation, I waited for a quarter

of an hour, and then reintroduced the tube, which gave her considerable pain, and threw up a similar injection, but containing a double quantity (two quarts) of warm water, and half an ounce of sulphate of soda. In a few minutes the bowels were freed, and discharged a considerable quantity of flatus, mucus, and hardened feces ; all griping pain of the abdomen disappeared, and the pulse became much fuller, and fell to 96.

9th, 2 o'clock, P.M. Has had two copious natural stools, but neither tormina nor tenesmus since yesterday. The tongue somewhat white, and the pulse 80, soft and full ; but she complains of an uneasy sensation about the umbilicus. Ordered to have the tube introduced again at eight o'clock in the evening, and a quart of warm water, two ounces of castor oil, and the same quantity of olive oil, to be injected through it into the colon.

10th, 9 o'clock, A.M. Has slept well, and had several natural stools, during the night ; and she is now quite recovered.

This case was also seen by Dr. Corrigan, and by two pupils.

In the first of these cases, although it was of a very acute kind, the patient was discharged in perfect health, on the fourth day from her admission into hospital ; and, in point of fact, could have been safely discharged a day earlier. In the second case, the symptoms were not so acute, but the patient was restored to perfect health in less

than two days. In both cases, we see that the treatment was confined to the introduction of the tube, the injection of mild purgative fluids, and occasionally of warm water alone ; and that under this simple plan of proceeding, all the symptoms yielded in the most decided and singularly rapid manner. These results exceed even my most sanguine expectations, and will amply excuse me in yielding to the pleasurable sensations they excite, and saying with Cicero,

“Has vaticinationes eventus comprobavit.”

THE END.

ERRATA.

Page 114, line 26, *for* last half year, *read* last year and a half.
 — 258, — 9, *for* presenting, *read* preserving.

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